LAKE COUNTY
FLORIDA

CONTRACT NO. 11-0409C

for **Park Landscape Maintenance and Related Services**
Group C

LAKE COUNTY, FLORIDA, a political subdivision of the state of Florida, its successors and assigns through its Board of County Commissioners (hereinafter "County") does hereby accept, with noted modifications, if any, the bid of **Helping Hand Lawn Care, Inc.** (hereinafter "Contractor") to supply **Park Landscape Maintenance and Related Services** to the County pursuant to County Bid number **11-0409** (hereinafter "Bid"), addenda nos. N/A opening dated **May 11, 2011** and Contractor's **May 9, 2011** Bid response thereto with all County Bid provisions governing.

A copy of the Contractor's signed Bid is attached hereto and incorporated herein, thus making it a part of this Contract except that any items not awarded have been struck through. The attachments noted below (if any) are attached hereto and are also made a part of this Contract.

Attachments: N/A

No financial obligation under this contract shall accrue against the County until a specific purchase transaction is completed pursuant to the terms and conditions of this contract.

Contractor shall submit the documents hereinafter listed prior to commencement of this Contract: N/A.

The County's Procurement Services Director shall be the sole judge as to the fact of the fulfillment of this Contract, and upon any breach thereof, shall, at his or her option, declare this contract terminated, and for any loss or damage by reason of such breach, whether this Contract is terminated or not, said Contractor and their surety for any required bond shall be liable.

This Contract is effective from **August 1, 2011** through **July 31, 2013** except the County reserves the right to terminate this Contract immediately for cause and/or lack of funds and with thirty (30) day written notice for the convenience of the County. This Contract provides for three (3) one (1) year renewals at Lake County's sole option at the terms noted in the Bid.

Any and all modifications to this Contract must be in writing signed by the County's Procurement Services Director.

LAKE COUNTY, FLORIDA

By: Sandra Rogers
Contracting Officer

Date: 7/6/11

Distribution: Original-Bid File
Copy-Contractor
Copy-Department

Office of Procurement Services **315 W. Main, Suite 441** **P.O. Box 7800**
Tavares, Florida 32778-7800 **Ph (352) 343-9839** **Fax (352) 343-9473**

Group C

LAKE COUNTY
FLORIDA

INVITATION TO BID (ITB)

Park Landscape Maintenance and Related Services

ITB Number:	11-0409	**Contracting Officer:**	**Sandra Rogers**
Bid Due Date:	May 11, 2011	**Pre-Bid Conf. Date:**	See Section 1.4
Bid Due Time:	3:00 pm	**ITB Issue Date:**	March 24, 2011

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SPECIFIC SOLICITATION REQUIREMENTS ARE AS NOTED BELOW:	
Proposal and/or Performance Bond:	Not applicable to this solicitation
Certificate of Competency/License:	Page
Indemnification/Insurance:	Page
Pre-Bid Conference/Walk-Thru:	Page

At the date and time specified above, all bids that have been received in a timely manner will be opened, recorded, and accepted for consideration. The names of the bidders submitting bids will be read aloud and recorded. The bids will be available for inspection during normal business hours in the Office of Procurement Services within ten (10) working days after the official bid due date. When counter-signed by an authorized County representative, this document and any specifically identified attachments may form the contract document binding the parties to all performance specified herein.

Vendors shall complete and return the entirety of this ITB Document, and attach all other information requested in this ITB document (See Provision 1.13). Failure to sign the bid response, or to submit the bid response by the specified time and date, may be cause for rejection of the bid.

NO-RESPONSE REPLY

If any vendor does not want to respond to this solicitation at this time, or, would like to be removed from Lake County's Vendor List, please mark the appropriate space, complete name below and return this page only.

☐ Not interested at this time; keep our firm on Lake County's Vendors List for future solicitations for this product / service

☐ Please remove our firm from Lake County's Vendor's List for this product / service.

VENDOR IDENTIFICATION

Company Name: _____ **Phone Number:** _____

E-mail Address: _____ **Contact Person:** _____

Section 1.1: Purpose

The purpose of this solicitation is to secure one (1) or more licensed contractor(s) to do detailed lawn maintenance, litter removal and maintenance for designated Lake County Parks and boat ramps and to provide all labor, materials, supervision and equipment in conjunction with the County's needs.

Section 1.2: Designated Procurement Representative

Questions concerning any portion of this solicitation shall be directed in writing [fax and e-mail accepted] to the below named individual who shall be the official point of contact for this solicitation. To ensure reply, questions should be submitted no later than five (5) working days before the bid due date.

Sandra Rogers, Contracting Officer
Lake County BCC
Procurement Services office
315 W. Main Street, Room 441
PO BOX 7800
Tavares, FL 32778-7800

Phone : 352.343.9832
Fax : 352.343.9473
E-mail: srogers@lakecountyfl.gov

No answers given in response to questions submitted shall be binding upon this solicitation unless released in writing as an addendum to the solicitation by the Lake County Procurement Services office.

Section 1.3: Method of Award in the County's Best Interests

The areas of the County to be maintained by the contract have been divided into five separate mowing areas (groups) as shown in the attached documents. The County intends to make award on a group-by-group basis by awarding each of the five mowing areas (groups) designated herein to the responsive and responsible bidder which submits the lowest price for each group as a whole. A single vendor may be awarded multiple groups. Bidders are encouraged to bid on all of the groups. If a vendor fails to submit an offer for all segments within a given group, its offer for that specific group will be rejected.

Section 1.4: Pre-Bid Conference/Site Visit (Mandatory)

A mandatory pre-bid conference and site visit will be held for Group A (North Lake Park) on April 6, 2011 at North Lake Park at Pavilion #2 to discuss the special conditions and specifications included within this solicitation. It is mandatory that a representative of the firm attend in order to qualify to submit an offer in response to this solicitation.

A mandatory pre-bid conference and site visit will be held for Group B (PEAR Park) on

April 6, 2011 at 12:30 pm at PEAR Park at the Dog Park area to discuss the special conditions and specifications included within this solicitation. It is mandatory that a representative of the firm attend in order to qualify to submit an offer in response to this solicitation.

A mandatory pre-bid conference and site visit will be held for Group C (North Lake County) on April 8, 2011 at Astor's Lion Park at 9:00 am, then traveling to all locations within this group to discuss the special conditions and specifications included within this solicitation. It is mandatory that a representative of the firm attend in order to qualify to submit an offer in response to this solicitation.

A mandatory pre-bid conference and site visit will be held for Group D (Central Lake County) on April 15, 2011 at Lake Idamere Park at 8:30 am then traveling to all locations within this group to discuss the special conditions and specifications included within this solicitation. It is mandatory that a representative of the firm attend in order to qualify to submit an offer in response to this solicitation.

A mandatory pre-bid conference and site visit will be held for Group E (South Lake County) on April 22, 2011 at Twin Lakes Park at 8:30 am to then traveling to all locations within this group to discuss the special conditions and specifications included within this solicitation. It is mandatory that a representative of the firm attend in order to qualify to submit an offer in response to this solicitation.

Vendors are requested to bring this solicitation document to the conference, as additional copies may not be available.

IMPORTANT NOTE: If a mandatory site visit is also being held in conjunction with this conference, it will be necessary for the vendor to attend in order to qualify to submit an offer in response to this solicitation.

Section 1.4.1: Examination of Site (Mandatory)

Prior to submitting its offer, the vendor is required to visit the sites of the proposed work and to become familiar with any conditions which may in any manner affect the work to be done or affect the equipment, materials and labor required. The vendor is also required to examine carefully the specifications and be thoroughly aware regarding any and all conditions and requirements that may in any manner affect the work to be performed under the contract. No additional allowances will be made because of lack of knowledge of these conditions.

Section 1.5: Term of Contract – Twenty-Four Months

This contract shall commence on the first calendar day of the month succeeding approval of the contract by the Board of County Commissioners, or designee, unless otherwise stipulated in the Notice of Award Letter distributed by the County's Office of Procurement Services; and contingent upon the completion and submittal of all required pre-award documents. The initial contract term shall remain in effect for twenty-four (24) months, and then the contract will remain in effect until completion of the expressed and/or implied warranty period. The contract

prices resultant from this solicitation shall prevail for the full duration of the initial contract term unless otherwise indicated elsewhere in this document.

Section 1.6: Option to Renew for Three (3) Additional One (1) Year Period(s)

Prior to, or upon completion, of the initial term of this contract, the County shall have the option to renew this contract for three (3) additional one (1) year period(s). Prior to completion of each exercised contract term, the County may consider an adjustment to price based on changes in the following pricing index: CPI. It is the vendor's responsibility to request in writing any pricing adjustment under this provision. The vendor's written request for adjustment should be submitted thirty (30) calendar days prior to expiration of the then current contract term. The vendor adjustment request must clearly substantiate the requested increase. The written request for adjustment should not be in excess of the relevant pricing index change. If no adjustment request is received from the vendor, the County will assume that the vendor has agreed that the optional term may be exercised without pricing adjustment. Any adjustment request received after the commencement of a new option period shall not be considered.

The County reserves the right to reject any written price adjustments submitted by the vendor and/or to not exercise any otherwise available option period based on such price adjustments. Continuation of the contract beyond the initial period, and any option subsequently exercised, is a County prerogative, and not a right of the vendor. This prerogative will be exercised only when such continuation is clearly in the best interest of the County.

Section 1.6.1: Price Redetermination - Fuel

If the below-identified price index for fuel (gas and/or diesel as applicable to the vendor's operation) increases by ten percent (10%) or more from the price index in effect on the beginning date of any contract resulting from this solicitation, the vendor may petition the Procurement Services Director in writing for an appropriate increase in the contract price(s). Any increase in the contract price(s) will be applied considering the relation of fuel cost to the contractor's total cost for the contracted product or service.

Any price re-determination will be solely based upon the percentage change between the base index and the current month index as documented by the:

> State of Florida Department of Management Services
> http://dms.myflorida.com/business_operations/state_purchasing/vendor_information/state_contracts_agreements_and_price_lists/state_term_contracts/gasoline_and_fuel_oil/price_sheets_daily_price/price_sheets_current_pricing for unleaded gas, Florida PAD 1, Orlando

The base index will be the index number for the month prior to the bid due date stated in the solicitation. The current month index will be the last month's index published before the request for a price re-determination is made.

The vendor shall provide (in writing) a cost analysis as described below for each contract price for which the vendor is requesting adjustment. This analysis must include the percentage increase calculation between the base and current month indices; a clear and detailed

representation of the fuel cost component of any contract price for which an adjustment is requested; and a calculation showing the original contract price, the requested adjustment, and the proposed revised price. As an example: if the fuel index increases by twelve percent (12%) and the fuel cost accounts for ten percent (10%) of the cost of the product or service, then the contract price may be increased by 1.2 % *(0.12 / 0.10)*. The vendor may submit additional clarifying or justifying information for the County's consideration. Failure to provide sufficient detail in the manner described above shall result in rejection of the vendor's request for pricing adjustment.

If the Procurement Services Director grants any increase in any contract price based upon this clause, the increased price(s) may be adjusted downward on a unilateral basis by the County if the fuel index(es) used to support any previous increase then decrease by ten percent (10%) or more. Any such decrease will be based on the calculations submitted by the vendor pertaining to any previous price increase.

This clause may be used in addition to any other price redetermination clause in this invitation/contract.

Section 1.7: Method of Payment - Monthly Invoices

The vendor(s) shall submit monthly invoices by the tenth (10th) calendar day of each month. These invoices shall be submitted to the County user department(s) that requested the service through a purchase order. The invoices shall reflect the type of service provided to the County in the prior month.

All invoices shall contain the contract and/or purchase order number, date and location of service and a list of all work performed and confirmation of acceptance of services by appropriate County representative. Contractor is required to submit a monthly notice of services performed along with a written report noting the general health and vitality of all plantings, the severity of any pests encountered, general condition of maintained areas, any vandalism and repair or replacement recommendations. Failure to submit invoices in the prescribed manner will delay payment, and the vendor may be considered in default of contract and its contract may be terminated. Payments shall be tendered in accordance with the Florida Prompt Payment Act, Part VII, Chapter 218, Florida Statutes.

Section 1.8: Insurance

Each vendor shall include in its solicitation response package proof of insurance capabilities, including but not limited to, the following requirements: [This does not mean that the vendor must have the coverage prior to submittal, but, that the coverage must be in effect prior to a purchase order or contract being executed by the County.]

An original certificate of insurance, indicating that the awarded vendor has coverage in accordance with the requirements of this section, shall be furnished by the vendor to the Contracting Officer within five (5) working days of such request and must be received and accepted by the County prior to contract execution and/or before any work begins.

The vendor shall provide and maintain at all times during the term of any contract, without cost or expense to the County, policies of insurance, with a company or companies authorized to do business in the State of Florida, and which are acceptable to the County, insuring the vendor against any and all claims, demands or causes of action whatsoever, for injuries received or damage to property relating to the performance of duties, services and/or obligations of the vendor under the terms and provisions of the contract. The vendor is responsible for timely provision of certificate(s) of insurance to the County at the certificate holder address evidencing conformance with the contract requirements at all times throughout the term of the contract.

Such policies of insurance, and confirming certificates of insurance, shall insure the vendor is in accordance with the following minimum limits:

General Liability insurance on forms no more restrictive than the latest edition of the Occurrence Form Commercial General Liability policy (CG 00 01) of the Insurance Services Office or equivalent without restrictive endorsements, with the following minimum limits and coverage:

Each Occurrence/General Aggregate	$1,000,000/2,000,000
Products-Completed Operations	$2,000,000
Personal & Adv. Injury	$1,000,000
Fire Damage	$50,000
Medical Expense	$5,000
Contractual Liability	Included

Automobile liability insurance, including owned, non-owned, and hired autos with the following minimum limits and coverage:

Combined Single Limit	$1,000,000

Workers' compensation insurance based on proper reporting of classification codes and payroll amounts in accordance with Chapter 440, Florida Statutes, and/or any other applicable law requiring workers' compensation (Federal, maritime, etc). If not required by law to maintain workers compensation insurance, the vendor must provide a notarized statement that if he or she is injured; he or she will not hold the County responsible for any payment or compensation.

Employers Liability insurance with the following minimum limits and coverage:

Each Accident	$1,000,000
Disease-Each Employee	$1,000,000
Disease-Policy Limit	$1,000,000

Professional liability and/or specialty insurance (medical malpractice, engineers, architect, consultant, environmental, pollution, errors and omissions, etc.) insurance as applicable, with minimum limits of $1,000,000 and annual aggregate of $2,000,000.

The following additional coverage must be provided if a dollar value is inserted below:

Loss of Use at coverage value: $ _____

Garage Keepers Liability at coverage value: $ _____

Lake County, a Political Subdivision of the State of Florida, and the Board of County Commissioners, shall be named as additional insured as their interest may appear on all applicable liability insurance policies.

The certificate(s) of insurance, shall provide for a minimum of thirty (30) days prior written notice to the County of any change, cancellation, or nonrenewal of the provided insurance. It is the vendor's specific responsibility to ensure that any such notice is provided within the stated timeframe to the certificate holder.

Certificate(s) of insurance shall identify the applicable solicitation (ITB/RFP/RFQ) number in the Description of Operations section of the Certificate.

Certificate holder shall be:

LAKE COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF
FLORIDA, AND THE BOARD OF COUNTY COMMISSIONERS.
P.O. BOX 7800
TAVARES, FL 32778-7800

Certificates of insurance shall evidence a waiver of subrogation in favor of the County, that coverage shall be primary and noncontributory, and that each evidenced policy includes a Cross Liability or Severability of Interests provision, with no requirement of premium payment by the County.

The Vendor shall be responsible for subcontractors and their insurance. Subcontractors are to provide certificates of insurance to the prime vendor evidencing coverage and terms in accordance with the Vendor's requirements.

All self-insured retentions shall appear on the certificate(s) and shall be subject to approval by the County. At the option of the County, the insurer shall reduce or eliminate such self-insured retentions, or the vendor or subcontractor shall be required to procure a bond guaranteeing payment of losses and related claims expenses.

The County shall be exempt from, and in no way liable for, any sums of money, which may represent a deductible or self-insured retention in any insurance policy. The payment of such deductible or self-insured retention shall be the sole responsibility of the vendor and/or sub contractor providing such insurance.

Failure to obtain and maintain such insurance as set out above will be considered a breach of contract and may result in termination of the contract for default.

Neither approval by the County of any insurance supplied by the vendor or Subcontractor(s), nor a failure to disapprove that insurance, shall relieve the vendor or Subcontractor(s) of full responsibility for liability, damages, and accidents as set forth herein.

Section 1.9: Bonding Requirements

Not applicable to this solicitation

Section 1.10: Additional Locations may be Added

Although this solicitation and resultant contract identifies specific locations to be serviced, it is hereby agreed and understood that any County department or agency facility may be added to this contract at the option of the County. When required by the pricing structure of the contract, vendor under this contract shall be invited to submit price quotes for these additional facilities. If these quotes are determined to be fair and reasonable, then the additional work will be awarded to the current contract vendor that offers the lowest acceptable pricing. The additional location shall be added to this contract by formal modification.

The County may obtain price quotes for the additional facilities from other vendors in the event that fair and reasonable pricing is not obtained from the current contract vendor, or for other reasons at the County's discretion.

Section 1.11: Additional Services may be Added

Although this solicitation and resultant contract identifies specific services to be performed, it is hereby agreed and understood that services may be added to this contract at the option of the County. When required by the pricing structure of the contract, vendor under this contract shall be invited to submit price quotes for these additional services. The additional services shall be added to this contract by formal modification.

The County may obtain price quotes for the additional services from other vendors in the event that fair and reasonable pricing is not obtained from the current contract vendor, or for other reasons at the County's discretion.

Section 1.12: Deletion of Locations

Although this solicitation identifies specific locations to be serviced, it is hereby agreed and understood that any County department or agency may delete service location(s) when such service is no longer required during the contract period, upon fourteen (14) calendar days written notice to the vendor.

Section 1.13: Deficiencies in Work to be Corrected by the Vendor

The vendor shall promptly correct all apparent and latent deficiencies and/or defects in work, and/or any work that fails to conform to the contract documents regardless of project completion status. All corrections shall be made within two (2) calendar days after such rejected defects, deficiencies, and/or non-conformances are verbally or electronically reported to the vendor by the County's project administrator. The vendor shall bear all costs of correcting such rejected work. If the vendor fails to correct the work within the period specified, the County may, at its discretion, notify the vendor, in writing, that the vendor is subject to contractual default provisions if the corrections are not completed to the satisfaction of the County within two (2)

calendar days of receipt of the notice. If the vendor fails to correct the work within the period specified in the notice, the County shall place the vendor in default, obtain the services of another vendor to correct the deficiencies, and charge the incumbent vendor for these costs, either through a deduction from the final payment owed to the vendor or through invoicing. If the vendor fails to honor this invoice or credit memo, the County may terminate the contract for default.

If field visits and/or complaints reveal unsatisfactory work by the Contractor, Lake County has the right to request photographic documentation of each site lawn services are provided, at no additional charge to the County.

Section 1.14: Completion of Work From Date of Purchase Order

See Scope of Services.

Section 1.15 Delivery and Completion of Solicitation Response

Section 1.15.1: Delivery of Solicitation Response

Unless a package is delivered by the vendor in person, all incoming mail from the U.S. Postal Service and any package delivered by a third party delivery organization (FedEx, UPS, DHL, private courier, etc.) will be opened for security and contamination inspection by the Lake County Clerk of the Circuit Court Mail Receiving Center in an off-site secure controlled facility prior to delivery to any Lake County Government facility, which includes the Lake County Procurement Services office.

To be considered for award, a bid or proposal must be received and accepted in the Procurement Services office prior to the date and time established within the solicitation. A response will not be considered for award if received in the Procurement Services office after the official due date and time regardless of when or how it was received by the Lake County Clerk of Court Mail Receiving Center. Allow sufficient time for transportation and inspection.

Each package shall be clearly marked with the applicable solicitation number, title, and company name. Ensure that your bid or proposal is securely sealed in an opaque envelope/package to provide confidentiality of the bid or proposal prior to the due date stated in the solicitation.

If you plan on submitting your bid or proposal **IN PERSON**, please bring it to:

LAKE COUNTY PROCUREMENT SERVICES
315 W. MAIN STREET
4TH FLOOR, ROOM 441
TAVARES, FLORIDA

If you submit your bid or proposal by the **UNITED STATES POSTAL SERVICE (USPS),** please mail it to:

LAKE COUNTY PROCUREMENT SERVICES

PO BOX 7800
TAVARES, FL 32778-7800

If you submit your bid or proposal by a **THIRD PARTY CARRIER** such as FedEx, UPS, or a private courier, please send it to:

LAKE COUNTY PROCUREMENT SERVICES
MAIL RECEIVING CENTER
32400 COUNTY ROAD 473
LEESBURG, FL 34788

Facsimile (fax) or electronic submissions (e-mail) will not be accepted.

Section 1.15.2: Completion Requirements for Invitation to Bid

One (1) signed original bid and One (1) complete copies of the bid submitted by the vendor shall be sealed and delivered to the Procurement Services office no later than the official bid due date and time. Any bid received after this time will not be considered and will be returned unopened to the submitter. The County is not liable or responsible for any costs incurred by any Bidder in responding to this ITB including, without limitation, costs for product and/or service demonstrations if requested.

When you submit your bid, you are making a binding offer to the County and are agreeing to all of the terms and conditions in this Invitation to Bid. Use only the form(s) provided in this document. If you make any change to the content or format of any form, the County may disqualify your offer. All information shall be legible and either written in ink or typewritten. If you make a correction or change on any document, the person signing the bid proposal must initial the change. The bid shall be manually signed in **BLUE INK** by an official authorized to legally bind the Bidder to its provisions.

COMPLETION OF BID PACKAGE: The vendor shall complete all required entries in Section 4 of the bid form such as, but not limited to, pricing pages, signature, certifications, references, and acknowledgement of any solicitation addenda. The vendor shall submit the entire solicitation with all Section 4 entries completed in the number of copies specified to the address specified in this solicitation. The vendor shall also submit any supporting documents (to include proof of insurability).

Specific Completion Directions:

- Pricing shall be completed as directed within Section 4.
- Initial and date in **BLUE INK** the appropriate space(s) for each addendum you received for this ITB.
- Insert any prompt payment discount that you will offer. Note payment is NET 30 DAYS otherwise.
- Complete all certifications included within Section 4 of the solicitation.
- Complete the reference information sheets (include at least three references) contained within

the solicitation.

- Complete the vendor information, and sign the bid (IN BLUE INK) in the spaces provided in Section 4 of the solicitation.
- If insurance is required, submit either a certificate of insurance, or evidence of insurability, that is in compliance with the stated insurance requirements.

Section 1.16: Hours of Operations

All normal service work under this agreement is to be performed between the hours of 7:00 A.M. and 4:00 P.M. Monday thru Sunday, including County Holidays.

Section 1.17: Certificate of Competency/Licensure, Permits, and Fees

Any person, firm, corporation or joint venture that submits an offer in response to a County solicitation shall, at the time of such offer, hold a valid Certificate of Competency or appropriate current license issued by the State or County Examining Board qualifying said person, firm, corporation or joint venture to perform the work proposed. If work for other trades is required in conjunction with this solicitation and will be performed by a sub-contractor(s) or vendor(s) hired by the prime/responding vendor, an applicable Certificate of Competency/license issued to the sub-contractor(s)/hired vendor(s) shall be submitted with the prime/responding vendor's offer; provided, however, that the County may at its option and in its best interest allow the prime/responding vendor to supply the sub contractor(s)/hired vendor(s) certificate/license to the County during the offer evaluation period. The prime/responding vendor is responsible to ensure that all required licenses, permits, and fees (to include any inspection fees) required for this project are obtained and paid for, and shall comply with all laws, ordinances, regulations, and building or other code requirements applicable to the work contemplated herein. Damages, penalties, and/or fines imposed on the County or the vendor for failure to obtain required licenses, permits, inspection or other fees, or inspections shall be borne by the vendor.

Section 1.18: Clean-Up

All unusable materials and debris shall be removed from the premises at the end of each workday, and disposed of in an appropriate manner. Upon final completion, the vendor shall thoroughly clean up all areas where work has been involved as mutually agreed with the associated user department's project manager.

Section 1.19: Conditions for Emergency, Hurricane or Disaster

Lake County Board of County Commissioners shall require "first priority" before, during and after a public emergency, disaster, hurricane, flood, or other act of God. It is imperative that the citizens are protected from any emergency situation which threatens public health and safety, as determined by the County. The County expects to pay contractual prices for all products required during an emergency situation.

Section 1.20: Dress Code/Demeanor

The dress code for Contractor's employees shall consist of shirt, pants, and work shoes/boots. All workers shall discharge their duties in a courteous and efficient manner and it shall be the duty of the Contractor to maintain a close check over its employees to ensure the maintenance of a high standard of service.

Section 1.21: Equipment

All vehicles used shall be in good operating condition and provided with all needed maintenance to sustain this condition for the duration of the contract. Vehicles must be properly registered and insured in accordance with the Motor Vehicle Laws of Florida and in compliance with all federal, state and local safety regulations. Equipment may be subject to inspection and approval prior to the award. Vehicles and equipment shall be operated in a manner to protect the users and occupants of the facility.

Section 1.22: Labor, Materials, and Equipment Shall be Supplied by the Vendor

Unless otherwise stated in this solicitation the vendor shall furnish all labor, material and equipment necessary for satisfactory contract performance. When not specifically identified in the technical specifications, such materials and equipment shall be of a suitable type and grade for the purpose. All material, workmanship, and equipment shall be subject to the inspection and approval of the County's Project Manager.

Section 1.23: Private Property

The contractor shall not enter upon private property for any purpose without obtaining written permission, and the contractor shall be responsible for the preservation of all public and private property, along and adjacent to the work site and shall use every precaution necessary to prevent damage or injury thereto. When or where any direct or indirect damage or injury is done to public or private property by or on account of the work, or in consequence of the non-execution thereof on the part of the contractor, the contractor shall restore, at no additional charge to the County, such property to a condition similar or equal to that existing before such damage or injury was done. The final determination of "similar or equal" restoration will be rendered by the County representative for the project.

Section 1.24: Protection of Property

All existing **structures, utilities, services, roads, trees, shrubbery, and property** in which the County has an interest shall be protected against damage or interrupted services at all times by the vendor during the term of this contract; and the vendor shall be held responsible for repairing or replacing property to the satisfaction of the County which is damaged by reason of the vendor's operation on the property. In the event the vendor fails to comply with these requirements, the County reserves the right to secure the required services and charge the costs of such services back to the vendor.

Section 1.25: Risk of Loss

The vendor assumes the risk of loss of damage to the County's property during possession of such property by the vendor, and until delivery to, and acceptance of, that property to the County. The vendor shall immediately repair, replace or make good on the loss or damage without cost to the County, whether the loss or damage results from acts or omissions (negligent or not) of the vendor or a third party.

The vendor shall indemnify and hold the County harmless from any and all claims, liability, losses and causes of action which may arise out of the fulfillment of this contract. The vendor shall pay all claims and losses of any nature whatsoever in connection therewith, and shall defend all suits, in the name of the County when applicable, and shall pay all costs and judgments which may issue thereon.

Section 1.26: Safety

The vendor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work and for complying with all requirements of the Occupational Safety and Health Administration Act (OSHA). The vendor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to persons or property.

The vendor shall provide all standard equipment, work operations, safety equipment, personal protective equipment, and lighting required or mandated by State, Federal, OSHA, or Americans with Disabilities Act of 1990 (ADA) regulations.

The vendor shall designate a competent person of its organization whose duty shall be the prevention of accidents at this site. This person shall be literate and able to communicate fully in the English language because of the necessity to read job instructions and signs, as well as the need for conversing with management personnel. This person shall be the vendor's superintendent unless otherwise designated in writing by the vendor to the Contract Manager.

SCOPE OF SERVICES

A. Detailed Mowing/Weedeating - during months of March through November, the Contractor shall mow all turf areas every ten (10) days or three (3) times per month. The cut edge of the known turf shall be at least three (3") inches above the ground and not more than three and half (3 1/2") inches above the ground.

   Detailed Mowing/Weedeating - During the months of December through February, the Contractor shall mow all turf areas twice (2) per month or every two (2) weeks. The Contractor shall assume these schedules are an absolute minimum and could be altered based on temperature, rainfall, or other conditions that impact plant growth. Additional cuts may be ordered by the County, and will be paid at the unit price for the affected site. All turf areas shall remain well manicured at all times. Any alternation of this minimum schedule shall be accomplished only with prior approval from the Parks & Trails Division.

   North Lake Community Park, during the months of March through October, the contractor shall mow all bahia turf areas one (1) time per week. During the month of November through February, the contractor shall mow all bahia turf areas every ten (10) days or three (3) times per month. Edging and weedeating services are required once a week during the twelve (12) month period.

B. Mowing work is permitted Monday thru Friday between the hours of 7:00 AM to 4:00 PM.

   Trash pickup will be performed Monday through Sunday, including County Holidays, between 7:00 AM to 4:00 PM.

   Blowing off will be performed Monday thru Friday, including County Holidays, between 7:00 AM to 4:00 PM.

D. The work under this scope of service is intended to include the furnishing of all materials, equipment and labor necessary for the maintenance and repairs of the County park trails. The work shall include, but not necessarily be limited to mowing, trash pickup and disposal. Minor corrective repairs such as painting of railing, painting over graffiti, boardwalk repairs and waterproofing, asphalt repairs, concrete pavement and curb repairs, asphalt and or concrete crack repairs, sod repairs, erosion and washouts and the cleaning of park amenities. All work shall be done in a neat, safe and workman like manner by competent contractor's personnel and preparations made in accordance with manufacture's recommendation and to the satisfaction of the Parks and Trails Division. Good housekeeping, consistent with safety shall be maintained.

   All equipment including but not limited to vehicles, trailers, ATV's, and chippers must be thoroughly cleaned with a pressure washer, by hand or blower to reduce the spread of exotic vegetation prior to leaving each work site.

C. Detailed Weeding - The Contractor shall manually remove all weeds and extraneous vegetation from all beds and planted areas on every cutting visit. All concrete and asphalt walkways and driveways shall be weeded; herbicide is acceptable for weed control only in these areas, (asphalt walkways and driveways). Herbicides shall be used only in strict accordance with the herbicide manufacturer's printed directions. All debris from weeding and edging shall be removed from area and disposed of at no extra cost to the County.

D. Insect and Disease Control — Contractor shall notify the Parks & Trails Division of any insect or disease problems in the planted beds or the turf areas and make recommendation for treatment. If areas with sod need new sod due to insect or other damage, the Contractor shall provide an estimate of materials needed. Replacement sod must be certified exotic invasive free by sod distributor. Certification to be submitted to the County.

E. Detailed Edging - the Contractor shall edge all plant beds, sidewalks, asphalt paths, driveways, parking lots, headers, and retaining walls, utility boxes, and curbs on every cutting visit. All clippings shall be picked up and properly disposed of by the Contractor, at no cost to the County, and the remaining loss material blown off all paved, recycled plastic, concrete or wood surfaces. Edging with herbicides shall <u>not</u> be allowed.

F. Overhang Trimming - The Contractor shall trim all branches from shrubs that hang or intrude into a walkway space on each mowing visit. The Contractor shall trim the shrub back only enough to clear the walkway until the next scheduled visit.

G. Trash Pick Up / Blowing off - The Contractor shall be responsible for removing and properly disposing of all trash and debris from the entire grounds before mowing is started. This is to include all limbs, tree and palm branches. All trash barrels will be emptied by the Contractor during each visit. Trash bags must be replaced as necessary. All playground equipment, rubber surfaces, pavilions and site amenities must be thoroughly blown off daily. If at any time, the Contractor finds a downed tree or any other condition that is unsafe; they are to contact the appropriate County Personnel immediately.

H. Storm or Natural Disaster - While the county will be responsible for clean up after a storm or natural disaster, the Contractor may be required as a condition of this contract to assist with the clean-up efforts. The Contractor will be reimbursed in accordance with the Federal Emergency Management Agency (FEMA) reimbursement schedules.

I. On-Site Preliminary Condition Survey - Seven days following commencement of the contract period, an appointed Parks and Trails staff member and an authorized representative of the Contractor shall perform a condition survey of all items of general maintenance involved in the contract and prepare a report. This signed report shall indicate the condition and location of all landscape items in need of maintenance.

J. The Contractor must provide a working and reliable 24hr telephone number and fax number. A foreman will be assigned to the project, with whom the Park representative may communicate on a regular basis, pertaining to the contract services. The assigned foreman will check in daily with the Park representative upon each occurrence of performance of services. The foreman will supervise and direct the work and its employees to the best of their ability and be solely responsible for all techniques, sequences, procedures, coordination of services and actions of the employees. Contractor's personnel shall maintain a neat appearance in the suitable clothing with Company identification, a safety vest in orange or yellow with reflective tape. Mowers and Bobcats require strobe lights on and always flashing. No heavy vehicles (pickup trucks, trucks, cars, etc.) only trail maintenance equipment such as mower, bobcats, etc. to be on trails. No exceptions.

K. The Contractor must correct any work found unsatisfactory and/or incomplete by the Parks & Trails Division within two (2) days of being notified by phone or fax. No exceptions. If field visits and/or complaints reveal unsatisfactory work by the Contractor, Lake County has the right to request photographic documentation from Contractor of each site lawn services are provided, at no additional charge to the County.

L. Paint material by Sherwin Williams, approved colors by Parks and Trails Division.
Wood/lumber waterproofing by Thompson Waterseal or approved equal.
Mulch – Pine bark installation 3 inches thick and 2 feet in diameter and 6" inches away from the tree trunk.
Pine Straw – Installation 3" inches thick and 6" inches away from tree or plant trunk.

M. The Contractor shall submit an anticipated monthly schedule of lawn maintenance monthly. Any deviation from this schedule shall be reported immediately to the Parks & Trails Division. See Attachment 2.

N. No payments will be made by the County unless all invoices are accompanied by a signed off Notice of Services Performed indicating actual date services were performed. No exceptions. Notice of Services Performed forms will be provided at each site for facility representative and the vendor representative performing the service. See Attachment 3.

O. Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries must be followed. See Attachment 4.

3.1 DEFINITIONS

Addenda: A written change to a solicitation.
Bid: Shall refer to any offer(s) submitted in response to this Invitation to Bid.
Bidder: Shall refer to anyone submitting a bid in response to an Invitation to Bid.
Contract: The agreement to perform the services set forth in this solicitation. The contract will be comprised of the solicitation document signed by both parties with any addenda and other attachments specifically incorporated.
Contractor: The vendor to which award has been made.
County: Shall refer to Lake County, Florida.
Invitation to Bid (ITB): Shall mean this solicitation document, including any and all addenda. An ITB contains well-defined terms, conditions, and specifications, and is awarded to the lowest priced responsive and responsible bidder.
Modification: A written change to a contract.
Responsible: Refers to a bidder that has the capacity and capability to perform the work required under an Invitation to Bid, and is otherwise eligible for award.
Responsive: Refers to a bidder that has taken no exception or deviation from the terms, conditions, and specifications set forth in an Invitation to Bid.
Solicitation: The written document requesting either bids or proposals from the marketplace.
Vendor: A general reference to any entity responding to this solicitation or performing under any resulting contract.

The County has established that the words "shall", "must", or "will" are equivalent within this ITB and indicate a mandatory requirement which shall not be waived by the County.

3.2 INSTRUCTIONS TO BIDDERS

A. Bidder Qualification

It is the policy of the County to encourage full and open competition among all available qualified vendors. All vendors regularly engaged in the type of work specified in the solicitation are encouraged to submit bids. To be recommended for award the County requires that vendors provide evidence of compliance with the requirements below upon request:

1. Disclosure of Employment
2. Disclosure of Ownership
3. Drug-Free Workplace
4. W-9 and 8109 Forms – The vendor must furnish these forms upon request as required by the Internal Revenue Service.
5. Social Security Number – The vendor must provide a copy of the primary owner's social security card if the social security number is being used in lieu of the Federal Identification Number (F.E.I.N.)
6. Americans with Disabilities Act (A.D.A.)
7. Conflict of Interest
8. Debarment Disclosure Affidavit
9. Nondiscrimination
10. Family Leave
11. Antitrust Laws – By acceptance of any contract, the vendor agrees to comply with all applicable antitrust laws.

B. Public Entity Crimes

Pursuant to Section 287.133(2)(a) of the Florida Statutes, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017 of the Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

C. Request for Additional Information

Any communication or inquiries, except for clarification of process or procedure already contained in the solicitation, are to be made in writing to the attention of the procurement representative identified in the solicitation no later than five (5) working days prior to the bid due date. Such inquiries shall contain the requester's name, address, and telephone number. The Procurement Services Office may issue an addendum in response to any inquiry received, prior to bid opening, which changes, adds to, or clarifies the terms, provisions, or requirements of the solicitation. The bidder should not rely on any statement or explanation whether written or verbal, other than those made in this solicitation document or in any addenda issued. Where there appears to be a conflict between this solicitation and any addenda, the last addendum issued shall prevail. It is the bidder's responsibility to ensure receipt and to acknowledge all addenda and any accompanying documentation. Failure to acknowledge each addendum may prevent the bid from being considered for award

D. Contents of Solicitation and Bidders' Responsibilities

It is the responsibility of the bidder to become thoroughly familiar with the requirements, terms, and conditions of this solicitation. Stated unawareness of contractual terms and conditions will not be accepted as a basis for varying the requirements of the County or the amount to be paid to the vendor.

E. Restricted Discussions

From the date of issuance of this solicitation until final County action, vendors should <u>not</u> discuss the solicitation with any employee, agent, or any other representative of the County except as authorized by the designated procurement representative. The only communications that shall be considered pertinent to this solicitation are written documents from the vendor addressed to the designated procurement representative and relevant documents promulgated by the designated procurement representative.

F. Change to, Withdrawal of, or Mistake in, Bid

<u>Changes to Bid</u> - Prior to bid opening, a bidder may change its bid by submitting a new bid with notice on the firm's letterhead, signed by an authorized agent, stating that the new submittal replaces the original submittal. The new submittal shall contain all information as required for submitting the original bid.

<u>Withdrawal of Bid</u> - A bid may be withdrawn, either physically or by written notice, at any time prior to the bid due date. If withdrawn by written notice, that notice must be addressed to, and received by, the designated procurement representative prior to the bid due date and time. A bid may also be withdrawn after expiration of the specified bid acceptance period, and prior to award, by submitting a letter to the designated procurement representative. The withdrawal letter must be on company letterhead and signed by an authorized agent of the bidder.

<u>Mistake in Bid</u> - Any allegation of mistake in Bid shall be treated on a case-by-case basis. It is to be assumed that any alteration in bid price after receipt of bids will be exceptional in nature, and will be allowed only when substantiated by current legal precedence.

G. Conflicts within the Solicitation

Where there appears to be a conflict between contractual terms and conditions, the technical specifications, the pricing section, or any addendum issued, the order of precedence shall be: last addendum issued, the pricing section, the technical specifications, the special, and then general conditions. It is incumbent upon the vendor to identify such conflicts prior to the bid response date.

H. Prompt Payment Terms

It is the policy of the County that payment for all purchases by County agencies shall be made in a timely manner and that interest payments will be made on late payments in accordance with Part VII, Chapter 218, and Florida Statutes, known as the Florida Prompt Payment Act. The bidder may offer cash discounts for prompt payments; however, such discounts will not be considered in determining the lowest price during bid evaluation. Bidders are requested to provide prompt payment terms in the space provided on the signature page of the solicitation.

3.3 PREPARATION OF BIDS

A. The Pricing Section of this solicitation defines the goods or services to be purchased, and must be completed and submitted with the bid. Use of any other form or alteration of

the form may result in the rejection of the bid.

B. The bid submitted must be legible, and completed using typewriter, computer or ink. Any entry change must be crossed out and initialed in ink. Failure to comply with these requirements may cause the bid to be rejected.

C. An authorized agent of the bidder's firm must sign the bid. **FAILURE TO SIGN THE BID MAY RENDER THE BID NON-RESPONSIVE.**

D. The bidder may be considered non-responsive if bids are conditioned to modifications, changes, or revisions to the terms and conditions of this solicitation.

E. The bidder may submit alternate bid(s) for the same solicitation provided that such offer is allowable under the terms and conditions. The alternate bid must meet or exceed the minimum requirements and be submitted as a separate bid marked "Alternate Bid".

F. When there is a discrepancy between the unit prices and any extended prices, the unit prices will prevail.

G. Any bid received after the stipulated bid due date and time through no fault of the County will be considered late, and except under the most exceptional circumstances, not be considered for award.

H. Unless otherwise specified in the solicitation, prices quoted shall be F.O.B. Destination. Freight shall be included in the bid price.

3.4 COLLUSION

Where two (2) or more related parties, as defined herein, each submit a bid for the same contract, or evidence any prior understanding, agreement, or connection in such regard, such bids shall be presumed to be collusive. Related parties shall mean bidder or principals thereof that have a direct or indirect ownership interest in another bidder for the same contract or in which a parent company or the principals thereof of one bidder have a direct or indirect ownership interest in another bidder for the same contract. Bids found to be collusive shall be rejected. Bidders which have been found to have engaged in collusion may be considered non-responsible, and may be suspended or debarred. Any contract resulting from collusive bidding may be terminated for default.

3.5 PROHIBITION AGAINST CONTINGENT FEES

The vendor warrants that they have not employed or retained any company or person, other than a bona fide employee working solely for the vendor to solicit or secure the contract and that they have not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the vendor, any consideration contingent upon or resulting from the award or making of the contract.

3.6 CONTRACTING WITH COUNTY EMPLOYEES

Any County employee or member of his or her immediate family seeking to contract with the County shall seek a conflict of interest opinion from the County Attorney prior to submittal of a response to contract with the County. The affected employee shall disclose the employee's assigned function within the County and interest or the interest of his or her immediate family in the proposed contract and the nature of the intended contract.

3.7 INCURRED EXPENSES

This solicitation does not commit the County to award nor be responsible for any cost or expense which may be incurred by any bidder in preparing and submitting a bid, or any cost or expense incurred by any bidder prior to the execution of a purchase order or contract agreement. By submitting a bid, the bidder also agrees that the County bears no responsibility for any costs of the bidder associated with any administrative or judicial proceedings resulting from this solicitation process.

3.8 COUNTY IS TAX-EXEMPT

The County is generally exempt from Federal Excise Taxes and all State of Florida sales and use taxes. Do not include any tax on any item or service. The County will sign an exemption certificate if submitted by the contractor. Contractors doing business with the County are <u>not</u> exempt from paying sales tax to their suppliers for materials to fulfill contractual obligations with the County, nor shall any contractor be authorized to use any of the County's Tax Exemptions in securing such materials.

3.9 PROPRIETARY/CONFIDENTIAL INFORMATION

Bidders are hereby notified that all information submitted as part of, or in support of, bid responses will be available for public inspection in compliance with Chapter 119 of the Florida Statutes (the "Public Record Act."). The bidder should not submit any information in response to any solicitation which the bidder considers proprietary or confidential. The submission of any information to the County in connection with any solicitation shall be deemed conclusively to be a waiver of any protection from release of the submitted information unless such information is exempt or confidential under the Public Records Act.

3.10 CANCELLATION OF SOLICITATION

The County reserves the right to cancel, in whole or in part, any Invitation to Bid when it is in the best interest of the County.

3.11 AWARD

A. Any award will be made to the lowest priced responsive and responsible bidder. The County reserves the right to reject any and all bids, to waive non-material irregularities or technicalities and to re-advertise for all or any part of this solicitation as deemed in its best interest. The County shall be the sole judge of its best interest.

B. When there are multiple line items in a solicitation, the County reserves the right to award on an individual item basis, any combination of items, total low bid or in whichever manner deemed in the best interest of the County. This provision specifically supersedes any method of award criteria stated in the solicitation when such action is clearly necessary to protect the best interests of the County.

C. The County reserves the right to reject any and all bids if it is determined that prices are excessive or determined to be unreasonable, or it is otherwise determined to be in the County's best interest to do so.

D. The County reserves the right to negotiate prices with the low bidder, provided that the scope of work is not amended.

E. Award of this solicitation will only be made to firms that satisfy all necessary legal requirements to do business with the County. The County may conduct a pre-award inspection of the bidder's site or hold a pre-award qualification hearing to determine the responsibility and capacity of the bidder to perform the requirements of this solicitation. Award of the contract resulting from this solicitation may be predicated on compliance with and submittal of all required documents as stipulated in the solicitation.

F. The bidder's performance as prime or subcontractor on previous County contracts shall be taken into account in evaluating the responsibility of a responding bidder.

G. The Director of Procurement Services will decide all tie bids in consonance with current written procedure in that regard.

H. A vendor wishing to protest any award decision resulting from this solicitation shall do so as set forth in the County's Purchasing Procedure Manual. It is incumbent upon the vendor to be aware of the posting of any associated award recommendation. Any protest received after the actual contract award date may be rejected.

3.12 GENERAL CONTRACT CONDITIONS

The contract shall be binding upon and shall inure to the benefit of each of the parties and of their respective successors and permitted assigns. The contract may not be amended, released, discharged, rescinded or abandoned, except by a written instrument duly executed by each of the parties hereto. The failure of any party hereto at any time to enforce any of the provisions of the contract

will in no way constitute or be construed as a waiver of such provision or of any other provision hereof, nor in any way affect the validity of, or the right thereafter to enforce, each and every provision of the contract. Any dispute arising during the course of contract performance that is not readily rectified by coordination between the vendor and the County user department shall be referred to Procurement Services office for resolution.

3137 OTHER AGENCIES
With the consent of the vendor, other agencies may make purchases in accordance with the contract. Such purchases shall be governed by the same terms and conditions as stated herein with the exception of the change in agency name.

3.14 CONTRACT EXTENSION
The County has the unilateral option to extend a contract for up to ninety (90) calendar days beyond the current contract period. In such event, the County will notify the vendor(s) in writing of such extensions. The contract may be extended beyond the initial ninety (90) day extension upon mutual agreement between the County and the vendor(s). Exercise of the above options requires the prior approval of the Director of Procurement Services.

3.15 WARRANTY
All warranties express and implied, shall be made available to the County for goods and services covered by this solicitation. All goods furnished shall be fully guaranteed by the vendor against factory defects and workmanship. At no expense to the County, the vendor shall correct any and all apparent and latent defects that may occur within the manufacturer's standard warranty period. The special conditions of the solicitation may supersede the manufacturer's standard warranty.

3.16 ESTIMATED QUANTITIES
Estimated quantities or dollars are for bidder's guidance only. No guarantee is expressed or implied as to quantities or dollar value that will be used during the contract period. The County is not obligated to place any order for a given amount subsequent to the award of this solicitation. The County may use estimated quantities in the award evaluation process. Estimated quantities do not contemplate or include possible additional quantities that may be ordered by other entities that may utilize this contract. In no event shall the County be liable for payments in excess of the amount due for quantities of goods or services actually ordered.

3.17 NON-EXCLUSIVITY
It is the intent of the County to enter into an agreement that will satisfy its needs as described within this solicitation. However, the County reserves the right to perform, or cause to be performed, all or any of the work and services herein described in the manner deemed to represent its best interests. In no case will the County be liable for billings in excess of the quantity of goods or services actually provided under this contract.

3.18 CONTINUATION OF WORK
Any work that commences prior to, and will extend, beyond the expiration date of the current contract period shall, unless terminated by mutual written agreement between the County and the vendor, continue until completion without change to the then current prices, terms and conditions.

3.19 LAWS, RULES, REGULATIONS AND LICENSES
The vendor shall comply with all federal, state, and local laws and regulations applicable to provision of the goods and/or services specified in this solicitation. During the term of the contract the vendor assures that it is in compliance with Title VII of the 1964 Civil Rights Act, as amended, and the Florida Civil Rights Act of 1992, in that the vendor does not on the grounds of race, color, national origin, religion, sex, age, disability or marital status, discrimination in any form or manner against the end/or employees or applicants for employment. The vendor understands that any contract is conditioned upon the veracity of this statement.

3.20 SUBCONTRACTING
Unless otherwise stipulated herein, the vendor shall not subcontract any portion of the work without the prior written consent of the County. Subcontracting without the prior consent of the County may result in termination of the contract for default.

3.21 ASSIGNMENT
The vendor shall not assign or transfer any contract resulting from this solicitation, including any rights, title or interest therein, or its power to execute such contract to any person, company or corporation without the prior written consent of the County.

3.22 RESPONSIBILITY AS EMPLOYER
The employee(s) of the vendor shall be considered at all times its employee(s), and not an employee(s) or agent(s) of the County, The contractor shall provide employee(s) capable of performing the work as required. The County may require the contractor to remove any employee it deems unacceptable. All employees of the contractor may be required to wear appropriate identification.

3.23 INDEMNIFICATION
To the extent permitted by law, the vendor shall indemnify and hold harmless the County and its officers, employees, agents and instrumentalities from any and all liability, losses or damages, including attorney's fees and costs of defense, which the County or its officers, employees, agents or instrumentalities may incur as a result of claims, demands, suits, causes of actions or proceedings of any kind or nature arising out of, relating to or resulting from the performance of the agreement by the vendor or its employees, agents, servants, partners, principals or subcontractors. The vendor shall pay all claims and losses in connection therewith, and shall investigate and defend all claims, suits or actions of any kind or nature in the name of the County, where applicable, including appellate proceedings, and shall pay all costs, judgments, and attorney's fees which may be incurred thereon. The vendor expressly understands and agrees that any insurance protection required by this Agreement or otherwise provided by the vendor shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County or its officers, employees, agents and instrumentalities as herein provided.

3.24 MODIFICATION OF CONTRACT
Any contract resulting from this solicitation may be modified by mutual consent of duly authorized parties, in writing through the issuance of a modification to the contract and/or purchase order as appropriate. This presumes the modification itself is in compliance with all applicable County procedures.

3.25 TERMINATION FOR CONVENIENCE
The County, at its sole discretion, reserves the right to terminate this contract upon thirty (30) days written notice. Upon receipt of such notice, the vendor shall not incur any additional costs under this contract. The County shall be liable only for reasonable costs incurred by the vendor prior to notice of termination. The County shall be the sole judge of "reasonable costs."

3.26 TERMINATION DUE TO UNAVAILABILITY OF CONTINUING FUNDING
When funds are not appropriated or otherwise made available to support continuation of performance in a current or subsequent fiscal year, the contract shall be cancelled and the vendor shall be reimbursed for the reasonable value of any non-recurring costs incurred amortized in the price of the supplies or services/tasks delivered under the contract.

3.27 TERMINATION FOR DEFAULT
The County reserves the right to terminate this contract, in part or in whole, or effect other appropriate remedy in the event the

vendor fails to perform in accordance with the terms and conditions stated herein. The County further reserves the right to suspend or debar the vendor in accordance with the County ordinances, resolutions and/or administrative orders. The vendor will be notified by letter of the County's intent to terminate. In the event of termination for default, the County may procure the required goods and/or services from any source and use any method deemed in its best interest. All re-procurement cost shall be borne by the vendor.

3.28 FRAUD AND MISREPRESENTATION
Any individual, corporation or other entity that attempts to meet its contractual obligations with the County through fraud, misrepresentation or material misstatement, may be debarred for up to five (5) years. The County as a further sanction may terminate or cancel any other contracts with such individual, corporation or entity with such vendor held responsible for all direct or indirect costs associated with termination or cancellation, including attorney's fees.

3.29 RIGHT TO AUDIT
The COUNTY reserves the right to require CONTRACTOR to submit to an audit by any auditor of the COUNTY's choosing. CONTRACTOR shall provide access to all of its records which relate directly or indirectly to this Agreement at its place of business during regular business hours. CONTRACTOR shall retain all records pertaining to this Agreement and upon request make them available to the COUNTY for three (3) years following expiration of the Agreement. CONTRACTOR agrees to provide such assistance as may be necessary to facilitate the review or audit by the COUNTY to ensure compliance with applicable accounting and financial standards. Additionally, CONTRACTOR agrees to include the requirements of this provision in all contracts with subcontractors and material suppliers in connection with the work performed hereunder. If an audit inspection or examination pursuant to this section discloses overpricing or overcharges of any nature by the CONTRACTOR to the COUNTY in excess of one percent (1%) of the total contract billings, in addition to making adjustments for the overcharges, the reasonable actual cost of the COUNTY's audit shall be reimbursed to the COUNTY by the CONTRACTOR. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the CONTRACTOR's invoices and/or records shall be made within a reasonable amount of time, but in no event shall the time exceed ninety (90) days, from presentation of the COUNTY's audit findings to the CONTRACTOR.

3.30 PUBLIC RECORDS
All electronic files, audio and/or video recordings, and all papers pertaining to any activity performed by the vendor for or on behalf of the County shall be the property of the County and will be turned over to the County upon request. In accordance with Chapter 119, Florida Statutes, each file and all papers pertaining to any activities performed for or on behalf of the County are public records available for inspection by any person even if the file or paper resides in the vendor's office or facility. The vendor shall maintain the files and papers for not less than three (3) complete calendar years after the project has been completed or terminated, or in accordance with any grant requirements, whichever is longer. Prior to the close out of the Contract, the vendor shall appoint a records custodian to handle any records request and provide the custodian's name and telephone number(s) to the County.

3.31 GOVERNING LAWS
The interpretation, effect, and validity of any contract(s) resulting from this solicitation shall be governed by the laws and regulations of the State of Florida, and Lake County, Florida. Venue of any court action shall be in Lake County, Florida. In the event that a suit is brought for the enforcement of any term of the contract, or any right arising there from, the parties expressly waive their respective rights to have such action tried by jury trial and hereby consent to the use of non-jury trial for the adjudication of such suit.

3.32 STATE REGISTRATION REQUIREMENTS
Any corporation submitting a bid in response to this ITB shall either be registered or have applied for registration with the Florida Department of State in accordance with the provisions of Chapter 607, Florida Statutes. A copy of the registration/ application may be required prior to award of a contract. Any partnership submitting a bid in response to this ITB shall have complied with the applicable provisions of Chapter 620, Florida Statutes. For additional information on these requirements, please contact the Florida Secretary of State's Office, Division of Corporations, 800.755.5111 (http://www.dos.state.fl.us).

3.33 PRIME CONTRACTOR
The vendor awarded the contract shall act as the prime contractor and shall assume full responsibility for successful performance of the contract. The vendor shall be considered the sole point of contact with regard to meeting all requirements of the contract. All subcontractors will be subject to advance review by the County in regards to competency and security concerns. After the award of the contract no change in subcontractors will be made without the consent of the County. The vendor shall be responsible for all insurance, permits, licenses, and related matters for any and all subcontractors. Even if the subcontractor is self-insured, the County may require the contractor to provide any insurance certificates required by the work to be performed.

3.34 FORCE MAJEURE
The parties will exercise every reasonable effort to meet their respective obligations hereunder, but shall not be liable for delays resulting from force majeure or other causes beyond their reasonable control, including, but not limited to, compliance with revisions to Government law or regulation, acts of nature, acts or omissions of the other party, fires, strikes, national disasters, wars, riots, transportation problems and/or any other cause whatsoever beyond the reasonable control of the parties. Any such cause may be cause for appropriate extension of the performance period.

3.35 NO CLAIM FOR DAMAGES
No claim for damages or any claim other than for an extension of time shall be made or asserted against the County because of any delays. No interruption, interference, inefficiency, suspension, or delay in the commencement or progress of the Work shall relieve the vendor of duty to perform, or give rise to any right to damages or additional compensation from the County. The vendor's sole remedy shall be the right to seek an extension to the contract time. However, this provision shall not preclude recovery of damages by the vendor for hindrances or delays due solely to fraud, bad faith, or active interference on the part of the County.

3.36 TRUTH IN NEGOTIATION CERTIFICATE
For all lump-sum or cost-plus fixed fee agreements exceeding $150,000, the firm awarded the agreement may be required to execute a truth in negotiation certificate stating that the wage rates and other factual unit costs are accurate, complete and current, at the time of contracting.

3.37 GRANT FUNDING
In the event any part of the contract is to be funded by federal, state, or other local agency monies, the vendor hereby agrees to comply with all requirements of the funding entity applicable to the use of the monies, including full application of requirements involving the use of minority firms, women's business enterprises, and labor surplus area firms. Vendors are advised that payments under the contract may be withheld pending completion and submission of all required forms and documents required of the vendor pursuant to the grant funding requirements. A copy of the requirements shall be supplied to the vendor by the County upon request.

ITB TITLE: Park Landscape Maintenance and Related Services

NOTES:

- Lake County is exempt from all taxes (Federal, State, Local). Pricing should be less all taxes. A Tax Exemption Certificate will be furnished upon request.
- The vendor shall not alter or amend any of the information (including, but not limited to stated units of measure, item description, or quantity) stated in the Pricing Section. If any quantities are stated in the pricing section as being "estimated" quantities, vendors are advised to review the "Estimated Quantities" clause contained in Section 3 of this solicitation.
- Each price offered in your bid shall be a firm-fixed price, exclusive of any tax. Any bid containing a modifying or "escalator" clause not specifically allowed for under the solicitation will not be considered.
- All pricing shall be FOB Destination unless otherwise specified in this solicitation document.
- All pricing submitted shall remain valid for a 90 day period. By signing and submitting a response to this solicitation, the vendor has specifically agreed to this condition.
- **Vendors are advised to visit our website at http://www.lakecountyfl.gov and register as a potential vendor. Vendors that have registered on-line receive an e-mail notice when the County issues a solicitation matching the commodity codes selected by a vendor during the registration process.**

ACKNOWLEDGEMENT OF ADDENDA

INSTRUCTIONS: Complete Part I or Part II, whichever applies

Part I:
The bidder must list below the dates of issue for each addendum received in connection with this ITB: Addendum #1, Dated: _____ Addendum #2, Dated: _____ Addendum #3, Dated: _____ Addendum #4, Dated: _____
Part II:
☐ No Addendum was received in connection with this ITB.

PRICING

Group A - North Lake Community Park	Per Month Price for Months of March through October	Per Month Price for Months of November through February	Trash Pickup Daily (Mon - Sunday) Blowing off Daily (Mon-Friday)
	Cut 1 time per week	Cut every 10 days / 3 times per month	
	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	
North Lake Community Park	5,000.00	3,000.00	$1,000.00
Number of months	X 8	X 4	X 12
Total cost to County for months noted	$ 40,000.00	$ 12,000.00	$ 12,000.00
Total for year (add all totals from line above):	$ 64,000.00		

Group B - PEAR Park	Per Month Price for Months of March through November	Per Month Price for Months of December through February	Trash Pickup Daily (Mon - Sunday) Blowing off Daily (Mon-Friday)
	Cut every 10 days / 3 times per month	Cut every 2 weeks / 2 times per month	
	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	
PEAR Park	$1,800.00	$1,200.00	1,000.00
Number of months	X 9	X 3	X 12
Total cost to County for months noted	$ 16,200.00	$ 3,600.00	$ 12,000.00
Total for year (add all totals from line above):	$ 31,800.00		

Group C - North Lake County	Per Month Price for Months of March through November	Per Month Price for Months of December through February	Trash Pickup Daily (Mon - Sunday) Blowing off Daily (Mon-Friday)
	Cut every 10 days / 3 times per month	Cut every 2 weeks / 2 times per month	
	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	
Astor Lions Park	300.00	200.00	90.00
Butler Street Boat Ramp	150.00	100.00	90.00
Lake George Boat Ramp	150.00	100.00	90.00
Lake Holly Boat Ramp	150.00	100.00	90.00

Lake Mack Park	150.00	160.00	90.00
McTureous Memorial Park	200.00	130.00	90.00
Paisley Community Park	300.00	200.00	90.00
Pearl Street Boat Ramp	150.00	100.00	90.00
Pine Forest Park	200.00	100.00	100.00
South Umatilla Park	150.00	100.00	90.00
Umatilla Veterans Hall	150.00	100.00	90.00
Total cost per month per location	$ 2,050.00	$ 1,330.00	$ 1,000.00
Number of months	X 9	X 3	X 12
Total cost to County per location per year	$ 18,450.00	$ 3,990.00	$ 12,000.00
Total for year (add all totals from line above):	$ 34,400.00		

Group D - Central Lake County	Per Month Price for Months of March through November	Per Month Price for Months of December through February	Trash Pickup Daily (Mon - Sunday) Blowing off Daily (Mon-Friday)
	Cut every 10 days / 3 times per month	Cut every 2 weeks / 2 times per month	
	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	
East Lake Community Park	800.00	540.00	71.00
Lake Dalhousie Boat Ramp	150.00	100.00	71.00
Lake Idamere Park	900.00	600.00	71.00
Lake Jem Park & Boat Ramp	200.00	125.00	71.00
Lake Joanna Park	150.00	100.00	71.00
Lake Saunders Boat Ramp	150.00	100.00	71.00
Lake Yale Boat Ramp East	150.00	100.00	71.00
Lake Yale Boat Ramp West	150.00	100.00	71.00
Marsh Park & Boat Ramp	600.00	400.00	71.00
Mt. Plymouth Park	150.00	100.00	71.00
Scott Park	150.00	100.00	71.00
Sorrento Park	600.00	400.00	71.00
Sylvan Shores Park	150.00	100.00	71.00
Trout Lake Park	100.00	100.00	71.00
Total cost per month per location	$ 4,400.00	$ 2,965.00	$ 1,000.00
Number of months	X 9	X 3	X 12
Total cost to County per location per year	$ 39,600.00	$ 8,895.00	$ 12,000.00
Total for year (add all totals from line above):	$ 60,495.00		

Group E - South Lake County	Per Month Price for Months of March through November Cut every 10 days / 3 times per month Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	Per Month Price for Months of December through February Cut every 2 weeks / 2 times per month Detailed Mowing, Weedeating, Weeding, Edging, Overhang Trim	Trash Pickup Daily (Mon - Sunday) Blowing off Daily (Mon-Friday)
Arnold Brothers Boat Ramp	150.00	100.00	100.00
Astatula Boat Ramp	150.00	100.00	100.00
Carlton Village Park	300.00	200.00	100.00
Haynes Creek Park	200.00	125.00	100.00
John's Lake Boat Ramp	150.00	100.00	100.00
Lake Thomas Cove Park	300.00	200.00	100.00
Palatlakaha River Park & Boat Ramp	300.00	200.00	100.00
Sparks Village Boat Ramp	150.00	100.00	100.00
Spring Lake Park	150.00	100.00	100.00
Twin Lakes Park	300.00	200.00	100.00
Total cost per month per location	$ 2,150.00	$ 1,425.00	$ 1,600.00
Number of months	X 9	X 3	X 12
Total cost to County per location per year	$ 19,350.00	$ 4,275.00	$ 12,000.00
Total for year (add all totals from line above):	$ 35,625.00		

Optional pricing, as necessary/needed per Parks and Trails Division

Optional Pricing:	Unit of Measure	Unit Pricing
Rail Painting	LF	$20.00
Painting over Graffiti	SF	$20.00
Boardwalk Repairs	SF	
Waterproofing Boardwalk	SF	
Ashalt Repair	SF	
Concrete Curb Repair	LF	
Crack Sealer	LF	
Concrete Pavement Repair	SF	
Sod Repair	SF	$1.00
Erosion / Washout	CY	$100.00
Pine Bark Mulch	~~SF~~ CY	$40.00
Pine Straw	SF	$10.00
Clean Amenities - bench	EA	$20.00
Clean Amenities - table	EA	$20.00
Clean Amenities - trash can	EA	$20.00
Clean Amenities - signs	EA	$20.00

Mandatory Site Visit Group A:
Vendor has completed the mandatory site visits to all locations - ✓ yes _____ no

Mandatory Site Visit Group B:
Vendor has completed the mandatory site visits to all locations - ✓ yes _____ no

Mandatory Site Visit Group C:
Vendor has completed the mandatory site visits to all locations - ✓ yes _____ no

Mandatory Site Visit Group D:
Vendor has completed the mandatory site visits to all locations - ✓ yes _____ no

Mandatory Site Visit Group E:
Vendor has completed the mandatory site visits to all locations - ✓ yes _____ no

By Signing this Bid the Bidder Attests and Certifies that:

- It satisfies all legal requirements (as an entity) to do business with the County.
- The undersigned vendor acknowledges that award of a contract may be contingent upon a determination by the County that the vendor has the capacity and capability to successfully perform the contract.
- The bidder hereby certifies that it understands all requirements of this solicitation, and that the undersigned individual is duly authorized to execute this bid document and any contract(s) and/or other transactions required by award of this solicitation.

Certification Regarding Acceptance of County Electronic Payable Process
Vendor will accept payment using the County's VISA- based electronic payment system: ☐ Yes ☒ No

Purchasing Agreements with Other Government Agencies
This section is optional and will not affect contract award. If Lake County awarded you the proposed contract, would you sell under the same terms and conditions, for the same price, to other governmental agencies in the State of Florida? Each governmental agency desiring to accept to utilize this contract shall be responsible for its own purchases and shall be liable only for materials or services ordered and received by it. ☐ Yes ☐ No (Check one)

Certification Regarding Felony Conviction
Has any officer, director, or an executive performing equivalent duties, of the bidding entity been convicted of a felony during the past ten (10) years? ☐ Yes ☒ No (Check one)

Conflict of Interest Disclosure Certification
Except as listed below, no employee, officer, or agent of the firm has any conflicts of interest, real or apparent, due to ownership, other clients, contracts, or interests associated with this project; and, this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a proposal for the same services, and is in all respects fair and without collusion or fraud.

_____

DUNS Number (Insert if this action involves a federal funded project): _____

General Vendor Information and Proposal Signature:

Firm Name: Helping Hand Lawn Care, Inc.
Street Address: PO Box 1704 Sorrento, FL 32776
Mailing Address (if different): _____
Telephone No.: 407-221-0593 Fax No.: 407-323-6104 E-mail: Normanrhhlawncare.com
FEIN No. 20 - 0089577 Prompt Payment Terms: ____ % ____ days, net 30
Signature: [signature] Date: 9 May 2011
Print Name: Norman Ripper Title: President

Award of Contract by the County: (Official Use Only)

By signature below, the County confirms award to the above-identified vendor under the above identified solicitation. A separate purchase order will be generated by the County to support the contract.

Vendor awarded as:

☒ Sole vendor Group C ☐ Pre-qualified pool vendor based on price
☐ Pre-qualified pool vendor (spot bid) ☐ Primary vendor for items: _____
☐ Secondary vendor for items: _____ ☐ Other status: _____
Signature of authorized County official: Sandra Rogers Date: 7-6-2011
Printed name: Sandra Rogers Title: Contracting Officer
Purchase Order Number assigned to this contract for billing purposes: _____

THE FOLLOWING DOCUMENTS ARE ATTACHED

Attachment 1: Work References
Attachment 2: Anticipated Monthly Schedule of Lawn Maintenance
Attachment 3: Notice of Services Performed
Attachment 4: Florida Friendly Best Management Practices

Attachment 1

WORK REFERENCES

Agency	
Address	
City,State,ZIP	
Contact Person	See attached
Telephone	
Date(s) of Service	
Type of Service	
Comments:	

Agency	
Address	
City,State,ZIP	
Contact Person	
Telephone	
Date(s) of Service	
Type of Service	
Comments:	

Agency	
Address	
City,State,ZIP	
Contact Person	
Telephone	
Date(s) of Service	
Type of Service	
Comments:	

Sanford, Fl 32771
(407) 665-5280
Fax: (407) 665-5305
JFenwick@seminolecountyfl.gov

Lake County Florida Storm Water Pond Contract

Scope of Services: We provide landscape maintenance services including fine turf mowing as well as shrub care, tree care, mulching, debris removal, and weed control for 2 10 Acre Native landscaped storm water pond sites.

From: 2009 to Present

Contact:
Ben Driver
Senior Stormwater Inspector
Lake County Public Works
437 Ardice Avenue
Eustis, Fl 32726
(352) 483-9090
Fax: (352) 483-9015
bdriver@lakecountyfl.gov

Lake County Florida Sidewalk Mowing and Debris Removal Contract

Scope of Services: We provide landscape maintenance services including fine turf mowing, debris removal, and scrub trimming.

From: June 2010 to Present

Contact:
Bob Baker
Contracts Coordinator
Lake County Road Operations
28127 CR561
Tavares, Fl 32778
(352) 343-6439
Fax: (352) 742-3511
rbaker@lakecountyfl.gov

We also currently service over 120 residential Fertilization and Pest Control customers

From 2009 to Present

Scope of Services: We provide general landscape maintenance services which include irrigation monitoring and reporting, **fertilization and pest control**, Mowing, shrub care, Palm tree trimming, leaf removal, trash removal, mulching and landscape installation projects.

Contact:
John Burt
Director Mount Dora Parks and Recreation Department

900 North Donnelly Street

Mount Dora, Florida 32757

Phone (352) 551-9838

Seminole County Contract
Properties Maintained: Cedar Ridge

From: 2009 to Present

Scope of Services: We provide general landscape maintenance services which include irrigation monitoring and reporting, **fertilization and pest control**, Mowing, shrub care, Palm tree trimming, leaf removal, trash removal, mulching and landscape installation projects.

Contact:
Carol Watral
Project Manager
Seminole County MSBU Program
(407) 665-7164 (phone)
(407) 665-7185 (fax)
cwatral@seminolecountyfl.gov

Seminole County Contract
Properties Maintained: All County Property Plant Bed Maintenance

From: November 2010 to Present

Scope of Services: We provide plant bed maintenance including Fertilization & Pest Control, Shrub trimming, weeding, tree trimming, plant replacement, irrigation trouble shooting and monthly reports.

Contact:
Joe Fenwick
Contract Coordinator
Seminole County Facilities Maintenance
205 W. Country Home Road

From: 2008 to Present

Scope of Services: We provide general landscape maintenance services which include irrigation monitoring and reporting, **fertilization and pest control**, Mowing, shrub care, Palm tree trimming, leaf removal, trash removal, mulching and landscape installation projects.

Contact:
Tamera (Tammey) Rogers
Community Services Director
CITY OF TAVARES
(352) 742.6338 (phone)
(352) 742.6351 (fax)

City of Tavares Contract:

Properties Maintained: State Road 19 Medians (2 miles)

From: 2008 to Present

Scope of Services: We provide general landscape maintenance services which include irrigation monitoring and reporting, **fertilization and pest control**, Mowing, shrub care, Palm tree trimming, leaf removal, trash removal, mulching and landscape installation projects.

Contact:
Tamera (Tammey) Rogers
Community Services Director
CITY OF TAVARES
(352) 742.6338 (phone)
(352) 742.6351 (fax)
trogers@tavares.org

City of Tavares Contract

Properties Maintained: Water Plant (10 acres)

From 2007 to Present

Scope of Services: We provide general landscape maintenance including mowing, trimming, edging, and blowing.

Contact:
Tamera (Tammey) Rogers
Community Services Director
CITY OF TAVARES
(352) 742.6338 (phone)
(352) 742.6351 (fax)
trogers@tavares.org

City of Mt. Dora Contract

Properties Maintained: Parks, Fire Department sites, City Hall, and library

Lake County Florida Public Safety Contract

Scope of Services: We provide landscape maintenance services including fine turf mowing as well as shrub care, tree care, mulching, debris removal, and weed control for 18 tower sites.

From: 2006 to Present

Contact: Greg Holcomb
421 W. Main St.
Tavares, Fl 32778
Office (352) 343-9458

Lake County Florida Fire Station Contract

Scope of Services: We provide landscape maintenance services including fine turf mowing as well as shrub care, tree care, mulching, debris removal, and weed control for 25 locations.

From: 2006 to Present

Contact: Chief Fillman
421 W. Main St.
Tavares, Fl 32778
JFillman@lakecountyfl.gov

Maitland, Florida Contract

Properties Maintained: Landscape Maintenance Services for all City owned medians (30 Acres)

From: 2006 to 2009

Scope of Services: We provided general landscape maintenance services which include irrigation monitoring and reporting, **fertilization and pest control**, shrub trimming, tree trimming, edging, ground cover maintenance, leaf removal, trash removal, mulching and landscape installation projects.

Contact: Mark Barton
Facilities Maintenance
Maitland, Fl
Phone: (407) 875-3693

City of Tavares Contract

Properties Maintained: Downtown Street Scape Maintenance

HELPING HAND LAWN CARE, INC.
"Lending a hand for all your lawn care needs"

Also, as part of these contracts we have installed hundreds of pallets of sod, thousands of shrubs and trees, and tens of thousands of cubic yards of mulch.

Lake County Florida Growth & Economic Development Contract

Properties Maintained: Commerce Park Groveland Fl

From: 2006 to 2010

Scope of Services: We provide landscape maintenance services for all medians and rights of way inside this 500 acre site as well as large storm water pond mowing.

Contact: Lind Green
421 W. Main St.
Tavares, Fl 32778
Office (352) 343-9899

Lake County Florida Facilities Maintenance Contract

Properties Maintained: County Fairgrounds, County Welcome Center, Animal Control, Medical Examiners Office, Environmental Lab, All County Maintenance Areas, County Libraries, County Community Centers, County Warehouse, County Fuel Stations, and all 25 County Fire Stations. (120 Acres)

From: 2006 to Present

Scope of Services: We provide general landscape maintenance services including fine turf mowing as well as shrub care, tree care, mulching, debris removal, and landscape installation.

Contact: Don Glessner
Facilities Supervisor
Facilities Services
421 W. Main St.
Tavares, Fl 32778
Office (352) 742-6507
Cell (352) 267-9515
Fax (352) 742-6516
dglessner@lakecountyfl.gov

ECHO	Edger	2008
ECHO	Edger	2008
ECHO	Edger	2009
ECHO	Edger	2010
ECHO	Edger	2010
ECHO	Edger	2010
ECHO	Edger	2010
ECHO	Edger	2010
ECHO	Hedge Trimmer	2006
ECHO	Hedge Trimmer	2008
ECHO	Hedge Trimmer	2009
ECHO	Hedge Trimmer	2010
ECHO	Hedge Trimmer	2010
ECHO	Hedge Trimmer	2010
ECHO	Blower	2006
ECHO	Blower	2006
ECHO	Blower	2007
ECHO	Blower	2007
ECHO	Blower	2008
ECHO	Blower	2009
ECHO	Blower	2009
ECHO	Blower	2010
ECHO	Blower	2010
ECHO	Blower	2010
Fert/Pest		
Ford	F150 Spray Truck	2000
Fuso Diesel	Spray Truck	2006
Lesco	Ride on Spreader	2009
Lesco	Push Spreader	2009
Lesco	Push Spreader	2009
Lesco	Push Spreader	2009
Lesco	Push Spreader	2009
Lesco	Back Pack Sprayer	2007
Lesco	Back Pack Sprayer	2007
Lesco	Back Pack Sprayer	2007
Lesco	Back Pack Sprayer	2007
Lesco	Back Pack Sprayer	2008
Lesco	Back Pack Sprayer	2008
Lesco	Back Pack Sprayer	2009
Lesco	Back Pack Sprayer	2010
Lesco	Back Pack Sprayer	2010
Lesco	Back Pack Sprayer	2010
Lesco	Back Pack Sprayer	2010
Lesco	Back Pack Sprayer	2010

Helping Hand Lawn Care, Inc.
Equipment List

Vehicles

Make	Model	Year
Ford	F350	1999
Ford	F150	1997
Ford	F250	1999
Dodge	1500	2000
Dodge	1500	2008

Mowers

Make	Model	Year
Xmark	62 Inch	2007
Toro	61inch	2005
Toro	48 Inch	2009
Toro	48 Inch	2007
Toro	48 Inch	2009
Toro	52 Inch	2009
Everide	52 Inch	2007
Toro	36inch	2009
Snapper	Commecial Push mower	2010

Trailer

Make	Model	Year
David's Trailers	12x6	2006
All Pro	12X6	2009
David's Trailers	16x7	2005
David's Trailers	16X7	2006
David's Trailers	16X7	2006
All Pro	18X7	2010
Dump Trailer	16X7	2008

Edgers/Trimmers/Blowers/Hedgers

Make	Model	Year
Little Wonder	Walk Behind Blower	2008
ECHO	Pole Saw	2007
ECHO	Chain Saw	2007
ECHO	Chain Saw	2009
ECHO	Chain Saw	2010
ECHO	String Trimmer	2008
ECHO	String Trimmer	2008
ECHO	String Trimmer	2008
ECHO	String Trimmer	2009
ECHO	String Trimmer	2009
ECHO	String Trimmer	2009
ECHO	String Trimmer	2010
ECHO	String Trimmer	2010
ECHO	String Trimmer	2010
ECHO	String Trimmer	2010
ECHO	String Trimmer	2010
ECHO	String Trimmer	2010
ECHO	Edger	2007

Florida Friendly Best Management Practices for Protection of Water Resources by the Green Industries

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
A Florida-Friendly Landscape Publication

LANDSCAPE MULCHES

Mulch is any material applied to the soil surface to protect or improve the area covered. Mulches are frequently applied around plants to modify the soil environment and enhance plant growth. They may consist of organic material such as bark, wood chips, leaves, pine needles, or grass clippings; or they can be inorganic material such as gravel, pebbles, polyethylene film, or woven ground cloth. Mulch can be applied to the soil surface but should not rest against the stems of landscape plants.

Mulching has the following beneficial effects on the soil and plants:

- Mulches can prevent the loss of water from the soil by evaporation. Moisture moves by capillary action to the surface and evaporates if the soil is not covered by a mulch.
- Mulches suppress weeds when the mulch material itself is weed-free and applied deeply enough (2 to 3 inches after settling) to prevent weed germination or to smother existing small weeds.

Figure 12. Mulch, not grass, should be used here.

- A more uniform soil temperature can be maintained by mulching. The mulch acts as an insulator that keeps the soil cool under intense sunlight and warm during cold weather.

Figure 13. Never build volcanoes. This crown will rot and the roots are smothered.

- Most mulches prevent crusting of the soil surface, thus improving absorption and percolation of water into the soil and, at the same time, reducing erosion.
- Organic materials used as a mulch can improve soil structure and tilth. As mulch decays, the material becomes topsoil. Decaying mulch may also add nutrients to the soil.
- Mulches add to the beauty of the landscape by providing a cover of uniform color and an interesting surface texture.
- Mulched plants produce roots in and directly under the mulch that surrounds them. The plants produce these roots in addition to the roots in the soil. As a result, mulched plants have more roots than plants that are not mulched.

For more information, see IFAS Publication ENH 103, *Mulches for the Landscape*, at http://edis.ifas.ufl.edu/MG251.

MULCHING BMPS

- When feasible, use mulches made from environmentally friendly sources or recycled materials.
- Do not pile mulch against a tree or around the bases of shrubs. Burying the crowns can lead to crown and root rot. Leave a clear space for air to reach the trunk.
- Maintain a 2"-3" depth of mulch after settling.

MOWING THE FLORIDA LAWN

Mowing is an important maintenance operation. Mowing at the correct height increases turf density and root health and suppresses weeds. A dense turf impedes stormwater runoff. A healthy root system ensures that water and nutrients are absorbed and not wasted. Fewer weeds mean less need for herbicides.

Clippings contain nutrients and should be recycled on the lawn. The nutrients in clippings are pollutants when they end up in stormwater systems and waterbodies.

Figure 14. This is BAD! Never direct clippings into the street where they can enter the storm drain system.

Growth rates and mowing height have the most influence on mowing frequency. As a rule of thumb, mowing should be done often enough so that no more than one-third of the leaf blade is removed at any one mowing. For example, if a St. Augustinegrass lawn is mowed at a height of 3 inches, it should be mowed when it grows to a height of 4 to 4.5 inches. Following this practice minimizes the effect of mowing on photosynthesis and helps to maintain the high percentage of leaf surface necessary for healthy root development. Research shows that returning grass clippings to the surface, sometimes referred to as grass recycling, does not increase thatch buildup on turf. Clippings have significant nutrient value and decompose rapidly, returning some fertilizer and organic matter to the soil.

Figure 15. Always remove clippings from impervious surfaces. These nutrients are going straight to a water body.

Mowing equipment and string trimmers can damage trees. Tree trunks that are bumped by mowers, or trees that are used as pivot points for turns, are injured via contact. Mechanical damage to trees can cause progressively bigger wounds, since the trees are hit in the same general area repeatedly over time. The damage eventually progresses through the phloem, cambium, and xylem of the tree. In a worst-case scenario, the tree is girdled and dies. Those trees not killed are stressed and the wounds end up as an entry point for disease and insect infestation. The whipping action of the nylon string on a trimmer can debark a young tree quickly, causing its demise.

The careful use of string trimmers and mowers in the landscape is imperative, and there is no reason to use them around trees. Replacing the grass around the base of trees with mulch provides a buffer zone. The larger the mulched area, the less the turf near the tree is stressed by shade, the more room the lawn mower has to maneuver with ease, and the less the string trimmer needs to be used. Mulch also confers other benefits, such as reduced competition from weeds and water conservation.

The growth habit and leaf width of a turfgrass species determines the optimum cutting height, frequency, and preferred mower type (Table 4). A grass that spreads

Table 4: Suggested mowing heights and mower types for Florida home lawns

Turfgrass Species	Optimal Mowing Height (inches)	Mowing Frequency (days)	Preferred Mower Type
Bahiagrass	3.0-4.0	7-17	Rotary/flail
Bermudagrass	0.5-1.5	3-5	Reel
Centipedegrass	1.0-2.0	10-14	Rotary
Seashore Paspalum	1.0-2.0	5-10	Rotary/reel
St. Augustinegrass, "Dwarfs"*	3.0-4.0	5-14	Rotary
	1.5-2.5	5-14	Rotary
Zoysiagrass	1.0-3.0	10-14	Reel

* Dwarf varieties of St. Augustinegrass ('Seville,' 'Jade,' 'Palmetto,' 'Delmar') are the only cultivars of this species that should be mowed at less than 3 inches.

MOWING BMPS

- Adjust the cutting height by setting the mower on a driveway or sidewalk and using a ruler to measure the distance between the ground and the blade.
- Do not mow wet turf because it can promote disease and fungus, and clippings can clog the machine. Mow only when the turf is dry.
- Sharpen the mower blade frequently enough to prevent a ragged appearance to the turf.
- Mow in a different direction every time the lawn is cut. This prevents wear patterns, reduces the grain (grass laying over in the same direction), and reduces the possibility of scalping.
- Use the highest acceptable mowing height for the grasses being grown.
- Do not remove more than one-third of the foliage at one time.
- Do not direct clippings into bodies of water or onto impervious surfaces. Remove any clippings that are blown onto sidewalks, driveways, and other impervious areas.
- Do not remove clippings. If clumping occurs, distribute the clippings by re-mowing or by lightly raking. You can also use a leaf blower to distribute clippings.
- Clean the mower after use to reduce rusting and weed seed movement.
- Practice grass recycling and return nutrients to the soil.
- If you must collect clippings, compost them. Use the compost as a soil modifier or mulch.
- Avoid mechanical damage to trees and shrubs from string trimmers, mowers, and other equipment.

horizontally can usually be mowed shorter than an upright-growing, bunching grass. Grasses with narrow blades can generally be mowed closer than grasses with wide blades. Bermudagrass is mowed at very low heights because of its numerous narrow leaf blades and low growth habit. On the other hand, bahiagrass needs to be mowed higher because of its open, upright growth habit.

Turfgrass undergoes physiological stress with each mowing, particularly if too much leaf tissue is removed. The effects of this "scalping" can produce long-term damage to the turf and leave it susceptible to numerous other stresses, such as insects, disease, drought, and sunscald. It is always important to leave as much leaf surface as possible for photosynthesis to provide food for regrowth.

For mowing safety, be sure to follow these tips:

- Pick up all stones, sticks, and other debris before mowing to avoid damaging the mower or injuring someone with flying objects.
- Never fill a hot mower with gasoline.
- Always wear heavy leather shoes when mowing the lawn.
- Check your mower every time it is used. Follow the manufacturer's recommendations for service and adjustments.

PRUNING OF LANDSCAPE PLANTS

Pruning is another important landscape maintenance task. Through the selective removal of shoots and branches, pruning a plant can improve its health, reduce the risk of failure, control growth, and enhance fruiting, flowering or appearance. Pruning should be a part of routine maintenance and should not be delayed until the landscape is overgrown. However, close attention should be paid to proper timing, depending on the needs of various plants. Proper plant selection can eliminate many pruning requirements, especially for shrubs.

Trees should not be pruned without a clearly defined objective. Objectives can include 1) reducing the risk of failure by improving structure and removing dead branches, 2) raising or reducing the crown to provide clearance, and 3) thinning the crown to increase air and light penetration. Removing the correct stems and branches to accomplish the specified objectives is as important as making the correct pruning cuts. If the wrong branches, or too many branches, are removed even with proper pruning cuts, nothing of merit has been accomplished.

For more information, see the following:

IFAS Circular 853, *Pruning Landscape Trees and Shrubs*, at http://edis.ifas.ufl.edu/MG087 or *Pruning Shade Trees in the Landscape*, at http://hort.ifas.ufl.edu/woody/pruning/.

ENH103

UF UNIVERSITY of FLORIDA
IFAS Extension

Mulches for the Landscape[1]

Robert J. Black, Edward F. Gilman, Gary W. Knox and Kathleen C. Ruppert[2]

A mulch is any material applied to the soil surface for protection or improvement of the area covered. Mulches are frequently applied around plants to modify the soil environment and enhance plant growth. The mulch material may be organic such as bark, wood chips, leaves, pine needles, grass clippings or similar material; or inorganic such as gravel, pebbles, polyethylene film or woven ground cloth.

BENEFITS OF MULCHING

Mulching has the following beneficial effects upon the soil and plants.

- Mulches can prevent loss of water from the soil by evaporation. Moisture moves by capillary action to the surface and evaporates if the soil is not covered by a mulch.
- Mulches suppress weeds when the mulch material itself is weed-free and applied deeply enough to prevent weed germination or to smother existing small weeds.
- A more uniform soil temperature can be maintained by mulching. The mulch acts as an insulator that keeps the soil cool under intense sunlight and warm during cold weather.
- Mulching will prevent crusting of the soil surface, thus improving absorption and percolation of water into the soil and, at the same time, reducing erosion.
- Organic materials used as a mulch can improve soil structure and tilth. As mulch decays, the material becomes topsoil. Decaying mulch may also add nutrients to the soil.
- Mulches also add to the beauty of the landscape by providing a cover of uniform color and interesting texture to the surface.

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- Mulched plants will produce roots in the mulch that surrounds them. These roots are produced in addition to the roots that a plant produces in the soil. As a result, mulched plants have more roots than unmulched plants.

ORGANIC MULCHING MATERIALS

Yard Trash

Florida law prohibits disposal of pine needles, leaves, grass clippings and plant trimmings in lined landfills. Instead, yard trash is usually placed at curbside and collected separately from the rest of our garbage for municipal disposal by burning, composting, or burial in an unlined landfill. Much of this yard trash can be recycled on-site as mulch. On-site use of yard trash offers the advantage of retaining in your landscape the nutrients found in yard trash. On-site is also more efficient and may help save tax dollars otherwise spent in transporting and disposing of the yard trash.

Pine needles, leaves and grass clippings can each be used alone as a mulch or in combination. Of the three, pine needles are the best mulching material. They are attractive, not easily removed from beds by wind or rain, and don't "mat down" excessively. However, they don't last more than 6 months due to rapid decomposition. Leaves can be used alone as a mulch but tend to blow away in windy locations and are easily washed from beds during heavy rain showers. Leaves do best as a mulching material when they are shredded. Grass clippings are the least desirable mulching material. They are easily transported by the wind, decompose very rapidly, and pack down to form a mat that can exclude air and water from the root zone. They should be spread thinly over the ground, mixed with other mulching materials or, better yet, composted with other yard waste. Plant trimmings such as twigs and small branches should be shredded before they are used as a mulch. A mechanical chipper/shredder is needed for this process.

Yard trash is readily available in many landscapes and thus is a very inexpensive source of mulch. However, there is some reluctance to use it because it is not as attractive as some commercial mulch materials. This problem can be overcome by adding a thin layer of a more uniform mulch over the yard trash. Some people also worry that weed seed may be gathered with yard trash and then distributed with the mulch. If this is a concern, yard trash may be partially composted. In the composting process, the compost pile heats and inactivates most weed seed. However, after partially composting yard trash, use only the particles larger than 1.5 inches for mulch. Yard trash breaks down during composting, and the use of smaller particles as mulch could smother roots of landscape plants by reducing soil aeration.

Cypress Mulch

In spite of being expensive, cypress mulch is a very popular mulching material. Much of its popularity is due to its rich brown color and longevity. Cypress mulch appears to have a high water-holding capacity that may reduce the amount of water reaching the plant root zone. However, once the mulch is thoroughly wet, it buffers the soil against soil-water evaporative losses. When dry, cypress mulch repels water, making it difficult to wet, particularly if it is on a mound or slope.

Pine Bark

Pine bark makes a very attractive, usually dark-colored landscape mulch. It can be purchased in various particle sizes, but the large-size particles 1.5 to 3 inches in diameter (called "nuggets" or "chunks)" are more attractive, last longer and are more effective for weed control than finely ground pine bark.

Wood Chips

Wood chips are obtained when the bark is removed from large logs. This material contains bark and pieces of wood of various sizes.

Straw

Straw can be used as a mulch but it is not attractive, decomposes rapidly, and may contain seed that will germinate and become weeds in the landscape.

Pecan Shells

Pecan shells make a long lasting, attractive, dark brown mulch. Their availability is usually limited to areas where pecans are processed.

Peanut Hulls

Peanut hulls can be obtained in areas where peanuts are processed. Because of their light color they are not as attractive as other mulching materials. They also may contain weed seed and lesion nematodes.

INORGANIC MULCHING MATERIALS

Gravel, Pebbles and Crushed Stone

These materials are permanent, fireproof and may be colored to blend in with the features of the home, patio or landscape. When used near a lawn, there is some danger that lawn mowers will pick up and throw the stones. These materials reflect solar radiation and can create a very hot landscape environment during the summer months.

Plastic Film

Black polyethylene film is very effective in preventing weed growth. However, clear or translucent plastic film will not suppress weed growth because light penetrates the film. Cover plastic film with a layer of mulch such as wood chips or pine needles to reduce heat absorption and to mask the artificial appearance of the plastic film. Plastic films are not recommended for poorly-drained areas. They may cause the soil to remain too wet, which could result in root disease problems. They are also not suited for steep slopes when an organic mulch is spread over the plastic, because rain water will wash the organic mulch away.

Woven Ground Cloth

Woven plastic and woven fabric materials are available in various lengths and widths. The fabric materials have been treated to resist decomposition. Unlike the plastic films, the woven materials allow water and air to move through them. They are very effective in controlling most weeds, but do little to prevent water loss from the soil and moderation of soil temperature. Sedges and some grasses grow up through the holes in the fabric.

Moisture, temperature and better weed control can by obtained by adding several inches of another mulching material on top of these mulching fabrics. They also should be fastened down to prevent being pushed up by perennial weeds.

WHERE TO USE MULCH

Mulch entire beds of shrubs, trees, annuals, perennials and/or ground covers. Mulching is an extremely important practice for establishing plantings. Mulch helps to conserve moisture in the root ball of the new plant until it establishes roots in the adjacent landscape soil. Mulch also helps discourage weeds that can compete with new plantings for water, nutrients and light.

Mulch can be used instead of grass around individual trees and shrubs in a lawn. This greatly reduces the competition for water and nutrients from the turf and increases the growth rate and health of trees and shrubs. When placed around plants in a vegetable garden, mulch can help to conserve water and control weeds.

In addition to being useful around plants, mulch can be used as a ground cover for walks, trails, driveways, and play and natural areas. It can be used temporarily to cover low-growing tender plants to protect them from frost injury. Mulch also can be composted and used as a soil amendment.

WHEN AND HOW OFTEN TO MULCH

Mulch can be applied around established plants at any time. Newly-set plants should be mulched after they are planted and thoroughly watered. Because of the abundance of leaves and pine needles, fall is an excellent time to collect leaves and other yard trash for mulching plants.

Organic mulches will gradually decompose and need replenishing to function effectively as a mulch. Shallow plant roots grow up and into moist mulch and they will die if the mulch is allowed to decay or wash

away. How often mulch needs to be replenished will depend on the mulching material. Grass clippings and leaves decompose very rapidly and need to be replenished frequently. Other organic mulches such as cypress mulch, pine bark and wood chips break down very slowly and need only be replenished every year or two. Once plants in a ground cover or shrub bed have formed a solid mass by touching one another, the mulching requirement is reduced. The plants create their own mulch by dropping leaves, flowers and fruit. Leaves from surrounding trees also may fall in the beds and provide additional "free mulch." Most organic mulches will change from their original colors to a weathered grey color with age. There are several ways of restoring color to mulches. One approach is to apply a thin (1 inch or less) layer of fresh mulch to the surface of the existing mulch. This approach is labor intensive, expensive and can result in an excessively thick mulch layer. Another approach is to shallow rake the existing mulch to restore a freshly mulched appearance. A third choice is to use a mulch colorant. Mulch colorants are dyes that are sprayed on the mulch to restore its color. Manufacturers claim they are harmless to both plants and animals, but applicators should use them cautiously as they can cause skin and eye irritation.

Inorganic mulches such as gravel, pebbles and stones are considered permanent mulches and rarely need replenishing. Still, small particles will eventually move down into the soil and a thin layer of gravel will need to be added to the existing layer of gravel. Leaves and other debris also need to be regularly removed from the top of these materials to maintain a neat appearance.

HOW TO APPLY MULCH

Mulch entire plant beds with a layer of mulching material. When mulching individual trees in lawns, create a circle of mulch about 2 feet in diameter for each inch of trunk diameter. Increase the size of the mulched area as the tree grows.

Pull mulch 1 to 2 inches away from the stems and trunks of plants. The high moisture environment created by mulch increases the chances of stem or trunk rot which can result in plant death.

HOW DEEP TO APPLY MULCH

The amount of mulch to apply will depend on the texture and density of the mulch. Many wood and bark mulches are composed of fine particles and should not be more than 2 to 3 inches deep after settling. Excessive amounts of these fine-textured mulches around shallow-rooted plants can suffocate their roots causing chlorosis and poor growth. Course-textured mulches such as pine needles and pine bark nuggets, which allow good air movement through them, can be maintained as deep as 4 inches.

Mulches composed solely of shredded leaves, small leaves (oak leaves), or grass clippings should never exceed a 2-inch depth. These materials have flat surfaces and tend to mat together, restricting the water and air supply to plant roots.

HOW MUCH TO BUY

If you are going to buy mulch, you need to calculate the area and the desired depth of coverage to determine how many cubic feet of mulch you should purchase. Bulk quantities of mulch are sold in cubic yard volumes.

First, determine the square foot measurement of your shrub or tree area(s) to be mulched. For instance, if you have a shrubbery border 4 feet wide and 25 feet long, the area to be mulched equals 100 square feet (4 feet x 25 feet = 100 square feet).

Next, if you are going to apply mulch 3 inches deep to this area, convert the 3 inches to a fraction of a foot. Three inches divided by 12 inches equals 1/4 foot, or .25 feet. Multiply this fraction by the square foot measurement of the area to be covered. For this example, you will need 25 cubic feet of mulch (.25 feet x 100 square feet = 25 cubic feet).

One cubic yard equals 27 cubic feet (a cubic yard measures 3 feet by 3 feet by 3 feet; 3 feet x 3 feet x 3 feet = 27 cubic feet). In the shrubbery example just given, you need 25 cubic feet of mulch, which is 2 cubic feet less than one cubic yard.

Before you purchase mulch in bulk (i.e., buy an entire cubic yard), compare the cost with purchasing your mulch in smaller units.

Bagged mulch is also available in amounts such as 1.25 cubic feet or 2.0 cubic feet. If you purchase the mulch needed for the shrubbery example given above in amounts of 1.25 cubic feet, you will need 20 bags (25 cubic feet r 1.25 cubic feet = 20 bags). If you purchase bags of 2.0 cubic feet, you will need 12.5 bags (25 cubic feet r 2 cubic feet = 12.5 bags). Therefore, you will purchase 13 bags.

However, as discussed above, always remember to pull mulch 1 to 2 inches away from the stems and trunks of plants to lessen the chances of stem or trunk rot. So, whether the shrubs are single or multi-stemmed, you will not need all of the mulch determined above; the calculations did not include either the area used by the stems and/or low branches, or the extra 1 to 2 inches around the stem(s). Therefore, you can purchase less mulch than the calculations indicate. If you are using an organic mulch and buy more bags than you need, return the extras for a refund, if possible (check store policy). Do not store organic mulches, because they will rapidly decompose in the bag. Inorganic mulches, however, may be stored.

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CIR853

UF UNIVERSITY of FLORIDA
IFAS Extension

Pruning Landscape Trees and Shrubs[1]

Edward F. Gilman and Robert J. Black[2]

Pruning is the removal of plant parts, typically shoots, branches, fronds and flowers to improve health, control growth or influence fruiting, flowering or appearance. Roots can also be pruned and removed if they circle close to or are resting against the trunk. Pruning should be a routine part of home-ground maintenance and not delayed until the landscape is overgrown. Overgrown plants can be tall and leggy with little foliage close to the ground, and cannot be pruned to desired size in a single pruning without severely damaging the plants. These plants should be pruned back gradually over a period of several years.

The objective of this document is to present pruning techniques for Florida trees, shrubs and palms. The need for pruning, timing, types of pruning, tree pruning, shrub pruning and tools are discussed separately. Specific examples will support the pruning concepts.

Minimize Pruning Needs with Proper Plant Selection

Proper tree selection at the nursery can eliminate early pruning requirements (Figure 1). Defects such as clustered branches can begin in the nursery and they should be corrected there. Shade trees should meet Florida #1 standards or better, and have one dominant trunk. Those with more than one trunk will have to be pruned soon after planting.

Why Prune?

Proper plant selection can eliminate much of the pruning requirements in today's landscapes. Unfortunately, plants are frequently placed in the landscape according to their current size and shape, not the size which the plant is likely to attain in five or more years. The homeowner or landscape manager soon finds it necessary to clip or prune plants frequently to keep them within bounds. For instance, frequent pruning is assured when photinia shrubs are selected as foundation plants, since this plant can quickly grow to 25-30' tall. Utilizing a low-growing, compact shrub in such a location would greatly reduce or eliminate required pruning. It is less time

1. This document is Circular 853 (MG087), Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. This document supersedes The Woody Ornamentalist, Vol. 14, No. 7 (published July 1989) and Special Series #2, SS-ORH-902, both titled Pruning Ornamental Trees and Shrubs. This information supports Environmental Landscape Management, i.e., landscape design and management for environmental horticulture. Publication date: June 1990. Reviewed: August 1994. Revised June 2005.
2. Edward F. Gilman, professor; Robert J. Black, professor emeritus, Environmental Horticulture Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611. For more information, contact your county Cooperative Extension Service office.

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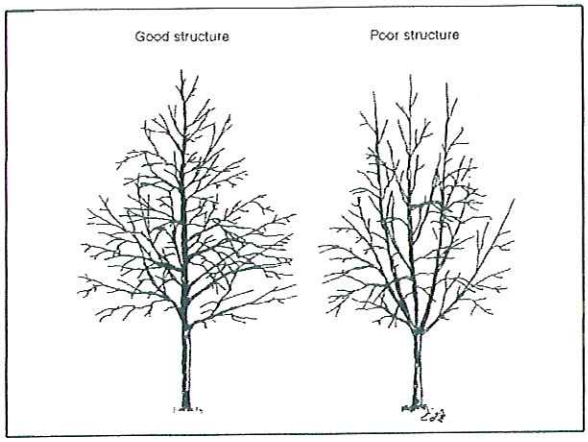

Figure 1. High quality medium and large-maturing shade trees have one dominant leader (left), whereas poor quality trees have several codominant stems (right).

consuming and less costly to select and install the proper sized plant than to choose one which will require frequent, timely pruning. Ask your nurseryman or consult a reliable source for growth rate and size of desirable plant species. If a plant needs to be pruned several times each year to control size, it may be the wrong species for that location. Many prunings can be eliminated by proper plant selection and this can save space in landfills by reducing the volume of yard waste.

Plants may be pruned for a number of reasons. Determine why you are pruning a plant before beginning.

Maintain or Improve Health or Vigor

Removal of dead, dying or damaged branches and diseased and insect infested plant parts is an effective way to limit the spread of decay, disease and insects to other portions of the plant or to neighboring plants. For example, if several branch tips are infested with aphids or scale, prune and discard the affected shoots. This can be an effective alternative to spraying insecticides if the infestation is small and localized. Weekly checking is often necessary to detect a disease or an infestation in the early stages.

Control Plant Size and Form

A common objective of pruning is to maintain or develop a desired size or form. However, this can be largely eliminated by installing the proper species or cultivar and by not over fertilizing. Many compact and dwarf shrubs are now available at retail garden centers. Selective pruning can shape plants or produce either a thin or thick canopy. A thinner canopy edge will allow more light penetration and help keep interior leaves on the plant. Root pruning can be used to slow plant growth, producing a more compact plant. Prune one half the root system, wait 4-6 weeks, then prune the other half. Root pruning should be scheduled so roots will be watered thoroughly to keep the soil moist for 4-6 weeks following root pruning.

Training Young Plants

There are several reasons to train plants. Pruning young trees so they have good branch structure can dramatically influence their long-term health, function and longevity. Snipping branch ends on young shrubs encourages branching and fullness, which are frequently desirable characteristics of landscape plants.

Branch spacing and arrangement and the ultimate structural strength and safety of a tree can be controlled by selectively removing or shortening branches on a young plant (Figure 2).

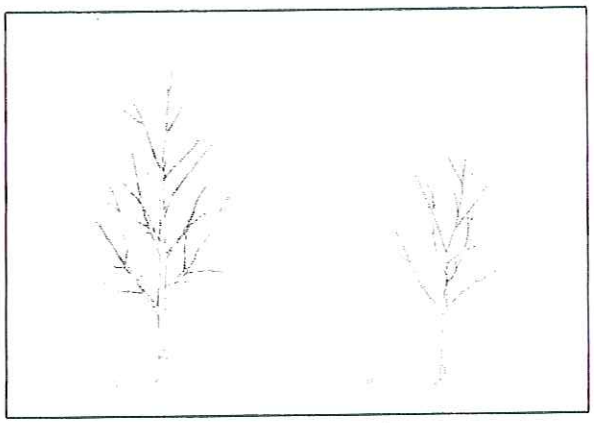

Figure 2. (A) Desirable form and branching pattern on a young, large-sized shade tree such as live oak, mahogany, or southern magnolia. Major limbs are spaced apart along the trunk, not clustered at the same point on the trunk. (B) Desirable form on a young, small-sized patio tree such as dogwood, trumpet tree, or frangipani. Major limbs can be spaced closer together on the trunk.

Encourage only one central trunk to develop by removing or reducing the length of competing, upright trunks or branches (Figure 3).

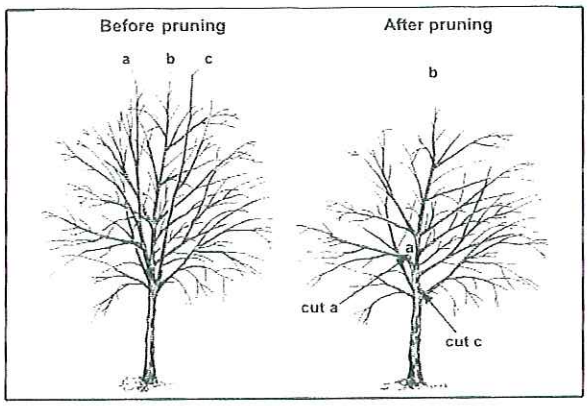

Figure 3. Reduce the length of (subordinate) leader a using a reduction cut to encourage leader b to grow faster. Remove leader c back to the trunk. After pruning, the tip of leader b should be much higher than the tops of all other stems. This technique will help leader b become the dominant trunk by slowing growth on competing leaders and allowing more sunlight to reach b. In most cases on large-maturing trees, branches in the lower 15 to 20 feet of the tree should be kept smaller than half the trunk diameter using this technique. Those same branches should not be allowed to grow up into the tree to become a permanent part of the canopy. Notice that branches are spaced along the trunk.

This should begin within the first 2-3 years after planting. Tree training continues for 20 or more years on large-maturing species. Frequent light prunings several times each year encourage faster growth and prevent undesirable sprouting compared to one heavy pruning each year. Pruning trees every year or two results in a nicer tree than waiting 4 or 5 years in between pruning sessions. In all but the highest maintenance landscapes, do not attempt to dramatically alter the natural form; instead, choose a species which has more of a natural tendency to grow into the desired form. For example, a river birch, red maple or tabebuia would be better suited as a shade tree in a narrow vertical space than would live oak.

Plants can be pruned into different shapes such as balls, squares, rectangles or animal figures to create special effects. This practice (topiary) has become popular in recent years, but plants pruned in this manner become focal points and should be used sparingly in most landscapes. Topiaries can be grown by planting a small-leaved plant such as boxwood, yaupon holly or natal plum and training the plant into a specific form. Another technique utilizes a wire mesh frame which is packed tightly with sphagnum moss. Appropriate plant species including begonias, ivy and creeping fig can be planted in the sphagnum, forming a fully grown topiary in several months to two years.

The practice of growing plants against a wall (espalier) or on a trellis requires frequent pinching and pruning. Plants trained in this manner are specimen plants and not all plants are adaptable to this pruning technique. Pyracantha, sea grape, *Fatshedra*, magnolia, yaupon holly, loquat and others make excellent espalier plants.

Plants which many consider as large shrubs such as photinia, wax myrtle and pittosporum can be trained into small trees by gradually removing over a period of 1-3 years, all the foliage and small branches from the lower portion of one or more stems. Small branches left along the lower trunk will build trunk caliper and create a sturdier tree. The longer they remain on the trunk, the thicker and stronger the trunk becomes.

Influence Flowering and Fruit Production

Larger fruit on certain species can be produced by selectively removing flowers or developing fruits. Those remaining will be larger. Light pruning helps to maintain annual flowering and fruiting on fruit trees. Severe pruning on plants which flower on current season's growth such as crape myrtle will generally stimulate vegetative growth and produce fewer, but larger flower clusters. Pinching new vegetative growth during the growing season will stimulate growth of lateral shoots which on species which flower terminally (e.g. azalea, cassia, crape myrtle) will increase the number of blossoms produced. Remove developing seed heads on crape myrtle to promote a second and perhaps a third flower display.

Safety Pruning

The manner in which stems are attached to each other and to the trunk influences the structural strength of the tree. Remove branches with bark inclusions having narrow V-shaped crotches in favor of wider-angled U-shaped crotches (Figure 4).

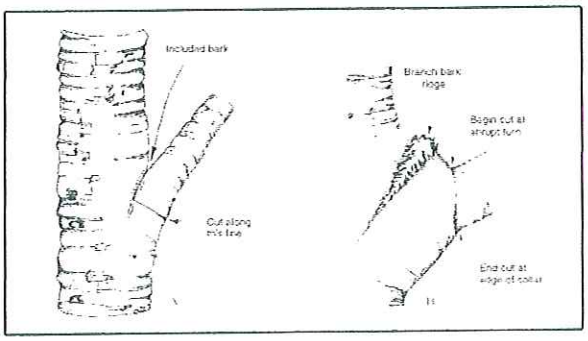

Figure 4. (A) Remove or reduce limbs with bark inclusions. They are poorly attached to the tree and can split from the tree as they grow older. Included bark is bark that is squeezed between stems. The union of the two stems appears as a "V." (B) Retain limbs with raised bark at the union of the stems. The crotch between these stems appears as a "U" and represents a strong union between stems.

Large decayed, broken, cracked or poorly attached tree limbs should be recognized and promptly removed by a professional before they fall. Remove dead branches and branch stubs since they can lead to serious trunk decay (Figure 5). Periodic tree inspection by a professionally trained tree specialist (arborist) can help prevent these situations from developing into unsafe conditions.

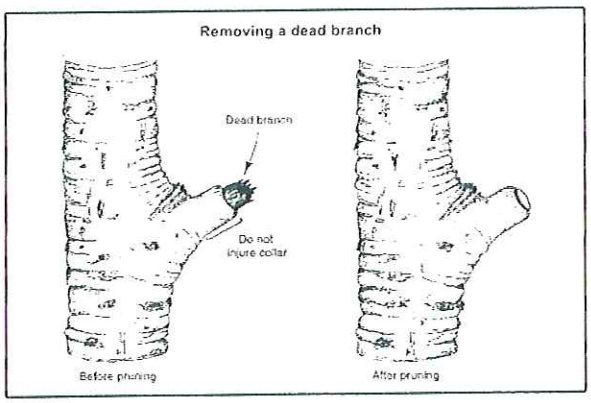

Figure 5. Proper removal of a dead branch. Do not cut into the swollen collar growing around the dead branch. This will injure the trunk, since the collar is composed of trunk tissue.

Rejuvenate Old Plants

Sometimes a shrub which is not growing well despite receiving adequate light, water and nutrients can be invigorated or "shocked" into growing by severe pruning. Typically, the plant either dies or begins growing vigorously in response to this drastic treatment.

Pruning at Transplanting

Shoot pruning for the purpose of compensating for root loss at transplanting is not recommended. Prune only to remove dead, diseased, crossed, rubbing or broken branches. About one year after transplanting, begin pruning to develop appropriate form and structure.

When to Prune

Trees and shrubs can be lightly pruned anytime. To minimize reduction of next year's flowers, prune spring-flowering plants such as azaleas, spireas, trumpet trees and dogwoods in late spring before the flower buds set for the next season (Table 1). These plants set their flower buds on the previous season's growth and the buds over winter on this older growth. For example, dogwoods and azaleas form flower buds in July for the following year's flower display. Pruning or pinching between the end of the flower display and late spring would not reduce the number of flower buds set. Pinching the new shoots on azalea anytime from several weeks after they begin elongating through May will encourage lateral branching. Each of these laterals is likely to develop a flower bud. Thus the pinched plant produces many more flowers the following year, than an unpinched plant (Figure 6). Pruning between July and the flower display would remove flower buds and reduce the flower display but should not affect the health of the plant.

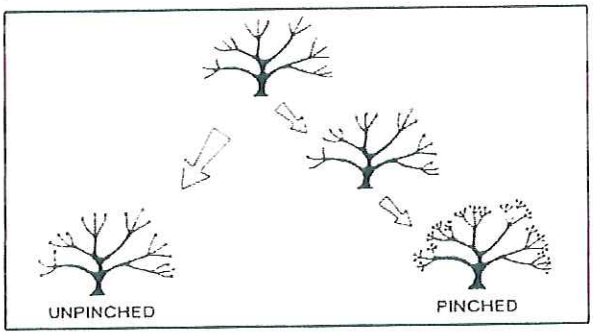

Figure 6. Pinching new spring or early summer growth on plants which flower on subsequent shoot growth will encourage more flower bud formation for next year's flower display. Azalea respond well to pinching.

Plants that produce flowers on current season's growth such as abelia, crape myrtle, hibiscus and rose are usually pruned while dormant or just before the spring growth flush (Table 2). Developing shoots can be pinched to encourage lateral branching which will enhance the flower display. Moderate to severe pruning may encourage production of fewer but larger blossoms or blossom clusters.

It is best to prune trees such as oaks, mahogany, black olives, hickory, and other large shade trees during the dormant season or just following a growth flush. They can be pruned at other times, but avoid pruning when trees are emerging from dormancy or entering dormancy.

Most evergreens such as podocarpus, jasmines, holly, boxwood, ligustrum, juniper and wax myrtle can be pruned anytime. Terminal growth of pines can be controlled by removing one-half of the candle in the spring just prior to needle expansion (Figure 7). This encourages new bud formation at the pinch, slows growth on the pinched branch and creates a more compact plant. New buds will not form behind pruning cuts made into older wood.

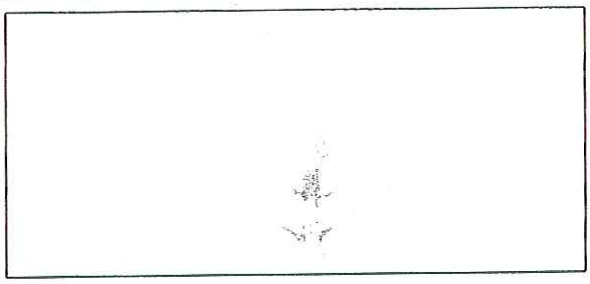

Figure 7. Prune pines by pinching one-half of the candle, or new shoot, before the needles elongate.

To encourage rapid shoot development and greatest overall plant growth, prune just prior to the first spring growth flush. To retard growth for maximum dwarfing effect, prune just after each growth flush. Late summer pruning may stimulate an additional flush of shoot growth on species which flush several times each year. These shoots could be damaged by an early frost.

Closure of pruning wounds on most trees and shrubs should be most rapid if pruning is conducted just before, or immediately following the spring growth flush. This is desirable because a closed wound is more aesthetically pleasing, and insects, diseases and decay organisms are discouraged from entering the plant. Late fall and early winter pruning can stimulate new growth, particularly during a mild period during the winter. These succulent stems are not cold hardy and can be easily damaged, even by a light frost. Low winter temperatures can also cause cambium damage near pruning cuts, even if growth is not stimulated by pruning. This is particularly true of plants which are marginally hardy. If in doubt about cold susceptibility, it is best to delay heavy pruning to just before growth begins in the spring.

Some trees such as birch, maple, dogwood, elm and walnut bleed sap from pruned wounds if they are pruned during late winter or early spring. This "bleeding" is not harmful to the tree, but the dripping sap is often objectionable. Trees which show this tendency should be pruned in late fall or early winter.

Pruning Techniques

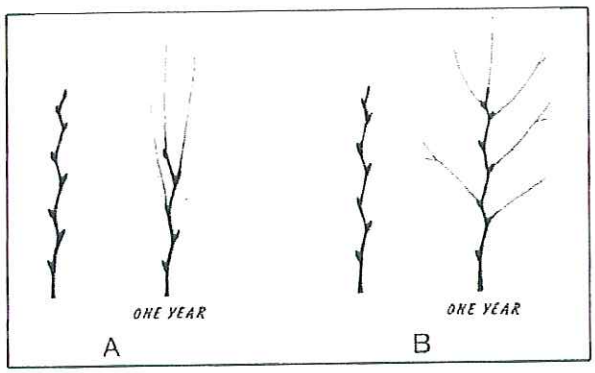

Figure 8. (A) Heading a young unbranched shoot will force two to four buds back from the cut into vigorous upright growth. Undesireable multiple leaders with included bark will develop on trees from this type of pruning, so it is not recommended; however, properly placed, these cuts can create and maintain a nicely formed shrub. (B) Growth from an unpruned shoot will be more typical of the natural form and more uniformly distributed along the stem. Note the horizontal branching habit.

Heading (Figure 8) is the selective cutting of terminal ends of twigs or young branches back to an axillary bud or node. This technique produces a shorter shrub. However, new growth is typically vigorous and upright, developing from two to several buds just behind the pruning cut. The new foliage may be so thick that it shades the lower growth forming a top-heavy plant. This can be avoided in

shrubs by heading shoots to several different heights (Figure 9).

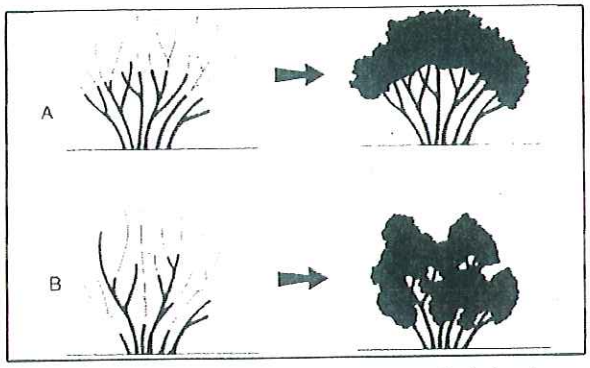

Figure 9. Heading shrubs is cutting back terminal shoots to a bud or node. (A) Heading all shoots to the same height produces a leggy, top-heavy shrub. (B) Heading shoots to several different levels poduces a more natural, fuller-looking shrub.

Heading (stubbing) trees is rarely warranted in landscape sites. Never "hat-rack" a landscape tree, i.e., cut all branches back to about the same length without regard for their location (Figure 10).

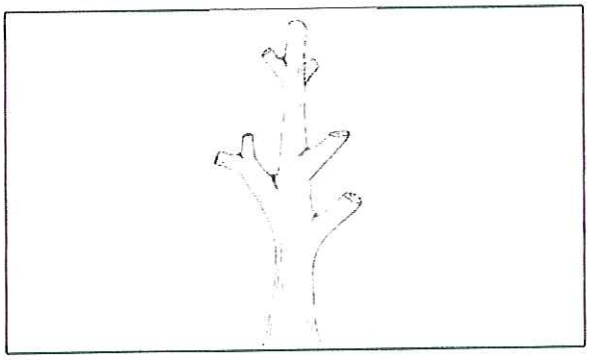

Figure 10. Never "hat-rack" a tree by heading back all branches to an indiscriminate location.

This type of pruning has no place in horticulture and is not recommended. When heading trees or shrubs, make the cut on a slight slant 1/4 inch above a healthy bud (Figure 11). The bud should be facing the direction preferred for new growth.

Thinning (Figure 12) is the complete removal of branches back to lateral branches, the main trunk, or in shrubs, to the ground. Thinning gives a plant an open appearance and can encourage new growth inside the crown depending on how the plant is thinned. If thinning is heavy, interior sprouts will develop. If the plant is lightly thinned, interior shoots

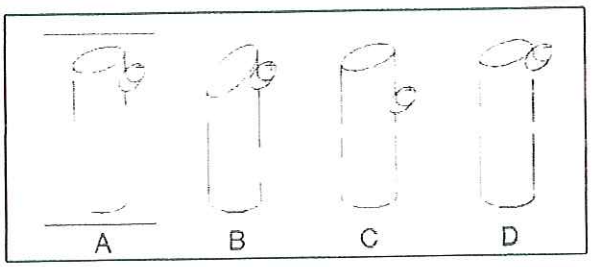

Figure 11. Proper pruning angle. "A" is a correct cut, "B" is too slanted, "C" is too far from the bud, "D" is too close to the bud.

are not likely to develop. This technique is used primarily on shrubs to make the canopy appear more open and see through. It contrasts to hedging or heading to the same spot on all branches which gives a shrub a manicured, controlled appearance. Trees can be thinned to increase light penetration, encouraging turf and shrub growth beneath the tree. Trees with properly thinned crowns also resist wind damage better than unpruned trees. This is a specialized technique best performed by a professional arborist. Removing live branches from mature trees can cause stress on the tree and harm it. Consider other alternatives first.

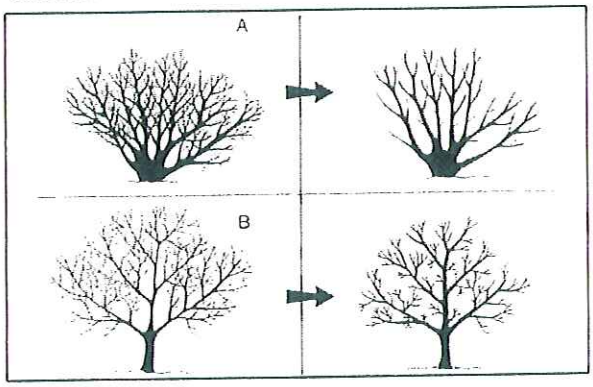

Figure 12. (A) Thinning shrubs is the complete removal of branches back to a lateral or the main trunk, or to the ground. (B) Proper thinning of shade trees removes branches at the edge of the canopy to create an open canopy.

Pruning Shrubs

The first step in pruning a shrub is to remove all dead, diseased, or injured branches. Pruning shears and saws can be dipped in a weak alcohol solution (1 part to 9 parts water) to prevent spread of disease between plants. Remove branches that cross or touch each other and those which look out of place. If the

shrub is still too dense or large, remove some of the oldest branches. Head back excessively long branches to a bud or lateral branch that is 6 to 12 inches below the desirable plant height. If the shrub is 2 to 3' too tall, heading (Figure 9) and thinning (Figure 12) may be desirable. Cut each branch separately to different lengths with hand pruners. This will maintain a neat informal shrub with a natural shape. Plants sheared into various geometric shapes produce a formality not suitable for many modern, natural landscapes. See the following section on hedge pruning for a discussion of formal pruning.

A properly pruned shrub is a work of art and beauty and does not look as if it has been pruned. Pruning cuts should not be visible, but located inside the plant, covered up by remaining foliage.

Rejuvenation of Shrubs

Rejuvenation is a drastic method of pruning old shrubs that have become much too large or have a large amount of non-flowering wood. On single-stem shrubs such as ligustrum and gardenia, rejuvenation is carried out over a period of 2-3 years by severe thinning out to the basic limb framework (Figure 13). One-third to one-half of the old growth is removed each year.

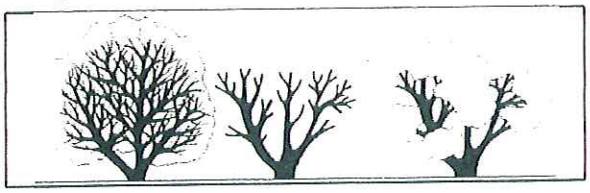

Figure 13. Rejuvenation on single stem shrubs is carried out by pruning much of the older branches and stems back to the basic framework.

Multiple stem shrubs are rejuvenated by cutting back all stems at ground level over a period of 3 years (Figure 14). Remove 1/3 of the old, mature stems the first year. The second year remove 1/2 of the remaining old stems and head back long shoots growing from the previous year's pruning cuts. The third season remove the remaining old wood and head back the long new shoots.

The best time for rejuvenation is in late winter or early spring, just before growth begins. Large, old shrubs should not be rejuvenated during late summer,

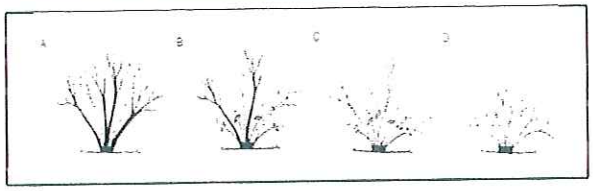

Figure 14. Rejuvenation of multiple stem shrubs. (A) First year, remove 1/3 of old, mature stems near ground level. (B) Second year, remove 1/2 of the remaining old stems and head back long regenerated shoots from last year's growth. (C) Third year, remove the remaining old stems and head back the long new shoots. (D) Growth at the end of the third season (rejuvenated shrub).

as new growth will be stimulated and possibly killed by cold weather in the winter.

Pruning cane-type shrubs such as nandina and mahonia is best done on a 2 or 3-year cycle. The tallest canes are pruned to a stub 3"-6" above the soil line during the first spring, just as growth begins. By the second spring, last year's medium sized canes have grown to become tall canes and should be cut back to a 3" stub. Canes from the first year's pruning have already begun to grow and are one to three feet tall by now. In the third spring, the canes which were the shortest in the first spring are now fairly tall and can be cut back. In this way, there is always foliage near the ground and the shrubs can be kept from becoming leggy. Cut nandina canes generally will not flower during the growing season following pruning.

Pruning Trees

First, prune out dead, diseased or broken twigs and branches. After studying the tree form, select the best spaced and positioned permanent branches and remove or shorten others on young trees. Permanent branches should be spaced between 6-24 inches apart on the trunk, depending on the ultimate mature size of the tree. For trees that remain small at maturity, 6" spacing is adequate; whereas, for oaks and other large shade trees, 18-24" spacing is best (Figure 15). Next, remove fast growing suckers at the base of and along the trunks. Sprouts along branches should be left intact in most cases. They typically indicate a struggling tree attempting to grow its way to health.

Trees should be pruned to one dominant leader (stem) after locating the straightest and best leader to retain (Figure 3 and Figure 17).

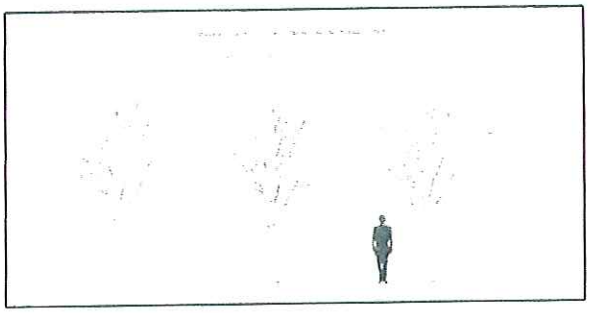

Figure 15. Shorten limbs a, b, and c because they are growing into the upper third of the canopy and they originate from the bottom half of the tree (left). Most, if not all, of these shortened limbs will eventually be removed from the tree as it grows in the landscape. They were shortened using reduction cuts (center). If the lateral branch left after making a reduction cut is too long, also shorten the lateral branch with a reduction cut (bottom detail). This essentially results in making two reduction cuts to accomplish subordination of a limb. Branch d was shortened because it was forming a codominant stem in the upper canopy (center).

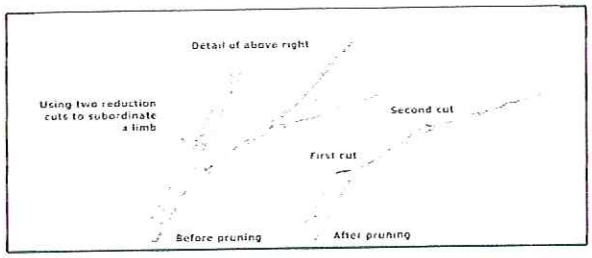

Figure 16.

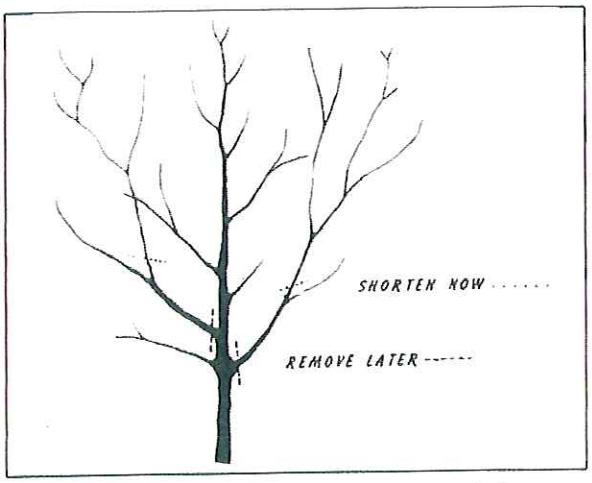

Figure 17. In forming the tree over a two-year period, remove lateral branches that grow upright. They will compete with the leader and form a weak, multiple-leadered tree.

Most shade trees can be grown in this form when they are young, but the growth habit of some species will change to a multi-leader spreading form as they mature. There should be no narrow forks or branches leaving the trunk at an acute angle (Figure 18). If there are, then reduce their length cutting back to a lateral branch at least half the diameter of the removed stem. Reduce length of stems and branches with bark inclusions (Figure 17).

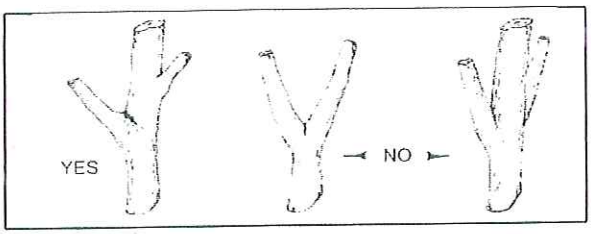

Figure 18. Branches that are small in relation to the trunk are well attached (left). Those that are the same size are not as well attached (center and right). Forked trunks can be dangerous. One of the forks should be reduced in length.

Removing Large Tree Branches

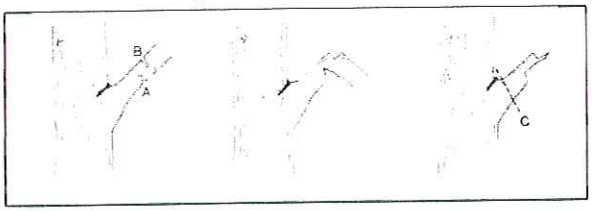

Figure 19. Removing a tree branch over 1 1/2" diameter. First cut at "A" until saw binds, then cut at "B" 2-4" beyond "A" until the branch falls, then cut at "C", outside of the branch collar (see Figure 19).

Large branches that are too heavy to be held with your hand (those 1-1/2" or larger in diameter) require three separate cuts to prevent trunk bark stripping. The first cut is made on the lower side of the branch about 15 inches away from the trunk and as far up through the branch as possible before the branch weight binds the saw (Figure 19). The second cut is made downward from the top of the branch a few inches from the first cut to cause the limb to split cleanly between the two cuts without tearing the bark. The remaining stub is easily supported with one hand while it is cut from the tree. This cut should begin on the outside of the branch bark ridge and end just outside of the trunk collar swelling on the lower side of the branch (Figure 20). This is usually

accomplished by cutting at a right angle to the top of the branch. In this way, only branch tissue is cut, and there is no damage to the trunk.

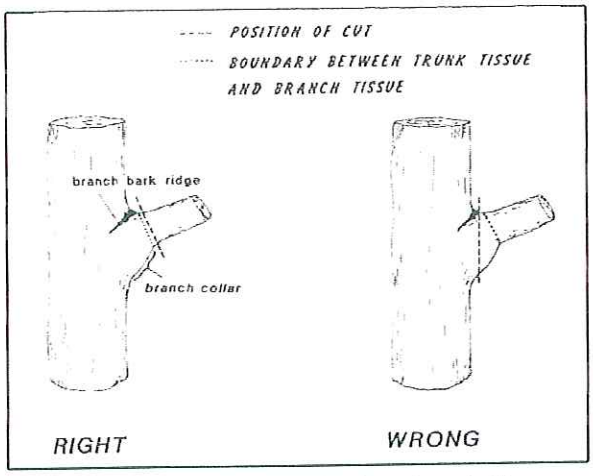

Figure 20. Correct and incorrect final pruning cut. All branches, large and small, should be cut in this manner. Do not cut into the branch collar. It is trunk wood and the trunk can decay if this tissue is damaged. Begin the cut on the outside of the branch bark ridge. This ridge is usually rough and always darker than the surrounding bark and is fairly obvious on most species. Angle the cut so it ends just beyond the swelling (branch collar) beneath the branch. If this swelling is not obvious, then place the cut at a right angle to the top of the branch.

The old practice had been to make the final cut flush with the trunk. Research has conclusively shown that this causes extensive trunk decay because wood is cut which is actually part of the trunk. Flush cuts should never be made since they injure the trunk.

Removing branches more than about 8" in diameter can result in trunk decay. Consider shortengin the branch instead back to a live lateral branch half the diameter of the cut.

Thinning the Canopy

Removing more than about 10% of live foliage from a mature tree can cause stress on the tree. To thin the canopy, remove 1/2-inch to 1-inch diameter stems from the edge of the canopy. Never clean out the interior of the tree by removing all of the small diameter branches attached to main branches and trunk (Figure 21).

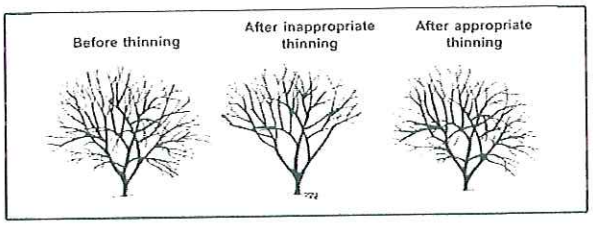

Figure 21. Inappropriate thinning leaves branches only at the edge of the crown (center). This situation can leave trees more vulnerable to wind damage and other stresses. Appropriate thinning (right) leaves live branches distributed all along limbs by removing live branches primarily from the edge of the crown.

Wound Dressing

Painting wounds with tree wound dressing was standard practice. The recommendation was to paint wounds with a quality tree wound dressing to protect the cut surface from wood rotting organisms and checking (cracking) upon drying. Research has shown, however, that wound dressings do not prevent decay. Upon exposure to the sun, the protective coating often cracks, allowing moisture to enter the cracks and accumulate in pockets between the wood and the wound covering. This situation may be more inviting to wood rotting organisms than one with no wound cover, but in situations where aesthetics are important, the practice may be justified if a light coat is applied.

Pruning Palms

Care must be taken when pruning palms not to cut or otherwise injure the terminal bud or the whole tree will die. Removing green fronds is not needed (Figure 22).

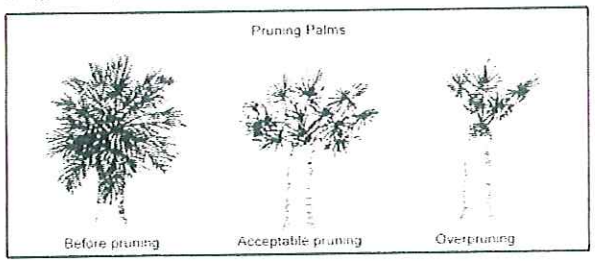

Figure 22. It is rarely necessary to remove green leaves from a palm. However, if you wish to do so, only remove those drooping below an imaginary horizontal line drawn through the bottom of the canopy (center). Growth will be slowed and the palm can be damaged and attract pests and diseases when green leaves are removed from above this imaginary line (right).

Old leaves that persist on palms such as the Washington palm can be removed, as they often harbor insects and rodents and may become a fire hazard.

When palms with large, heavy fronds such as the Royal palm shed their heavy leaves, they can damage property and injure people. If they are growing where falling leaves may be hazardous, remove leaves before they drop.

Large fruits of coconut palms can be dangerous to pedestrians and automobiles passing beneath the palm. Prevent formation of fruits by removing the flower stalks. Flower stalks on christmas palm and others can be left on the palm to take advantage of the ornamental characteristics of the fruit.

Hedge Pruning

The method of pruning hedges depends on the type of hedge desired. Informal hedges generally consist of a row of closely planted shrubs which are allowed to develop into their natural shape. Annual pruning consists of thinning and heading just enough to maintain desired height and width.

The desired appearance of a formal hedge is a hard outline of foliage from the top of the hedge to the ground. Two important factors to remember when pruning formal hedges are (1) hedges should be clipped while the new growth is green and succulent and (2) plants should be trimmed so the base of the hedge is wider than the top (Figure 23). Hedges pruned with a narrow base will lose lower leaves and branches because of insufficient light. This condition will worsen with age resulting in sparse growth at ground level and an unattractive hedge which does not give desired privacy.

Flowering hedges grown formally should be sheared after they have bloomed since more frequent shearing reduces number of blooms. If the blooms are of secondary importance, pruning may be conducted at any time.

Pruning Tools

Basic tools used in pruning are hand pruner, loppers, hedge shears and saws (Figure 24). Hand

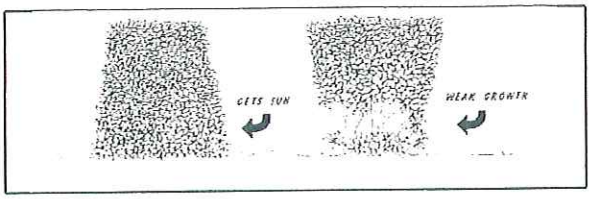

Figure 23. Plants pruned as a solid hedge should be wider at the bottom than the top.

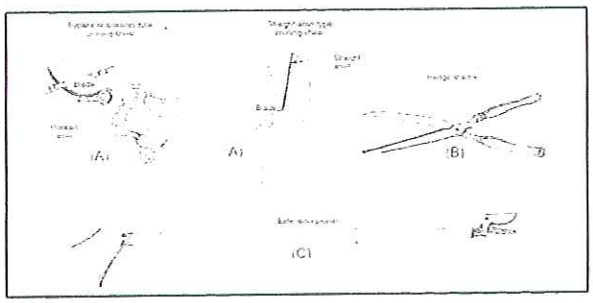

Figure 24. Pruning tools. (A) Hand pruners are used to cut branches less than 1/4 inch in diameter. (B) Hedge shears are used to shear formal hedges. (C) Extension pruners can reach higher.

pruners are used for small branch and twig cleanup, pruning saws for larger branches and hedge shears to trim closely clipped formal hedges only. Both shears and saws are available on poles which are handy to prune difficult to reach branches. Loppers should not be used for pruning on live shrubs and trees since they damage the collar on the trunk.

Tools should be kept sharp for easier cutting without injuring surrounding tissue. Injured tissues are susceptible to disease and decay, which can lead to long-term health problems for the plant.

Table 1. Winter and spring flowering plants which can be pruned after flowering but before flower buds form for next year's show.*

Shrubs	
azaleas	spireas
some hydrangea	Indian hawthorn
banana shrub	wisteria
camellia	star and saucer magnolia
Trees	
dogwoods	redbud
fringe tree	magnolias
african tulip-tree	

* The only effect from pruning at other times is a reduction in the number of flower buds.

Table 2. Plants producing flowers on current season's growth which can be pruned during the dormant season.*

Shrubs	
allamanda	plumbago
abelia	thryllis
hibiscus	golden dew-drop
oleander	bouganvillea
rose	vitex
Trees	
frangipani	acacia
bottle brush	golden rain tree
cassia	princess-flower
royal poinciana	crape myrtle
jacaranda	

* Structural pruning to correct forks and multiple stems can be done at any time.

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Mowing Your Florida Lawn[1]

L.E. Trenholm, J.B. Unruh, and J.L. Cisar[2]

Mowing is one of the most important aspects of maintaining a good quality lawn. Mowing increases turfgrass density, producing a tighter lawn that is resistant to weeds. Proper mowing practices, along with fertilization and irrigation, can largely determine the success or failure of a lawn.

The two main components of mowing are cutting height and frequency. Both of these factors depend on the turfgrass species, cultivar, and the level of lawn quality desired. Several other practices involving the use of mowers are also important in creating a quality lawn.

Height of Mowing

The optimum cutting height is determined by the growth habit and leaf width of the turfgrass species. A grass that spreads horizontally can usually be mowed shorter than an upright-growing, bunch-type grass. Grasses with narrow blades can generally be mowed closer than grasses with wide blades. Bermudagrass is mowed at very low heights because of its numerous narrow leaf blades and low growth habit. On the other hand, bahiagrass needs to be mowed at higher heights because of its open, upright growth habit.

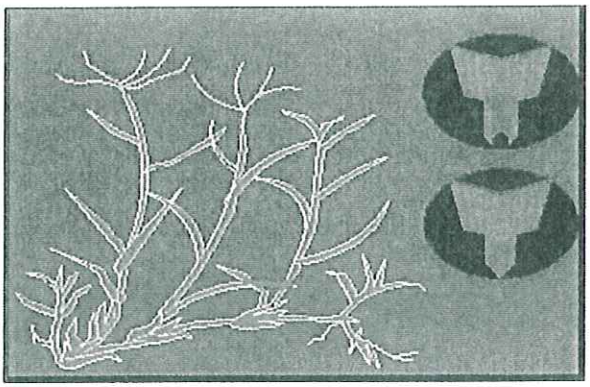

Figure 1. Bermudagrass

Turfgrass undergoes physiological stress with each mowing event, particularly if too much leaf tissue is removed. Effects of "scalping," or removal of too much shoot tissue at one time, can produce long-term damage to the turf. This can leave turf susceptible to other stresses such as insects, disease, drought, and sunscald. Mowing also greatly influences rooting depth, with development of a

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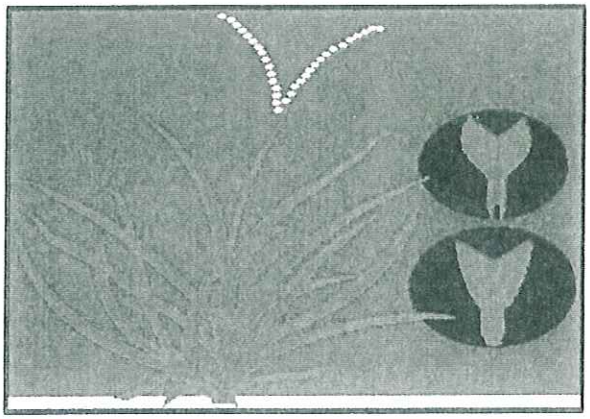

Figure 2. Bahiagrass

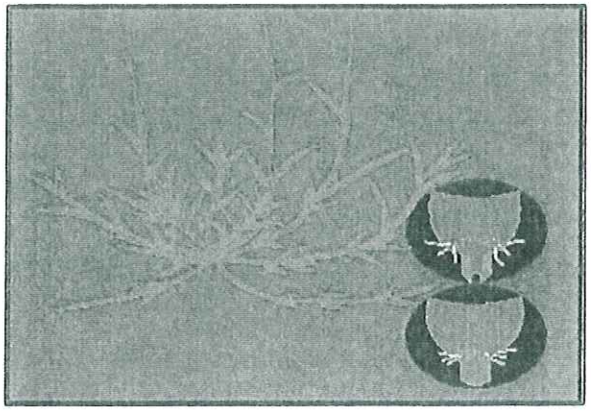

Figure 3. Zoysiagrass

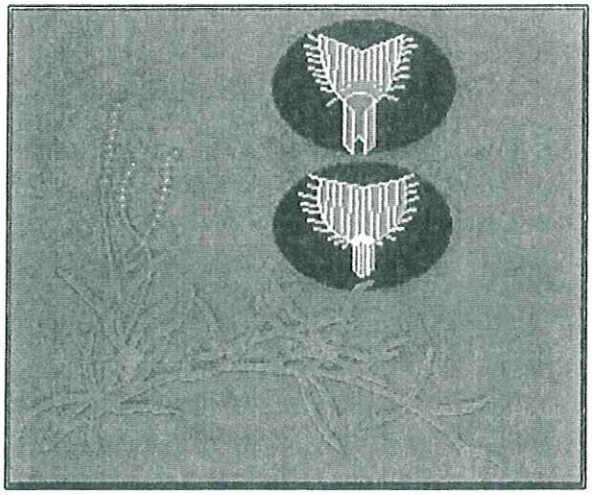

Figure 4. Centipedegrass

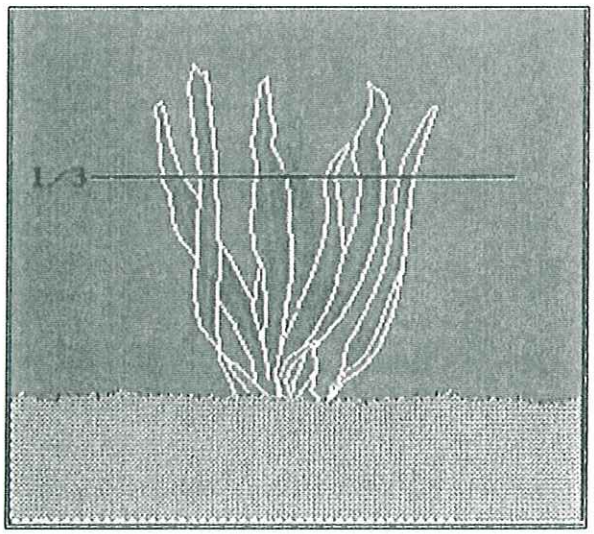

Figure 5. One-Third the Blade Height

deeper root system in response to higher mowing heights. Advantages of the deeper root system are greater tolerances to drought, insects, disease, nematodes, temperature stress, poor soil conditions, nutrient deficiencies, and traffic. Mowing below the recommended heights for each species is a primary cause of turf death and should be avoided.

Frequency of Mowing

The growth rate of the lawn determines how frequently it needs to be mowed. The growth rate is influenced by grass species, weather conditions, time of year, and level of management. Slowest growth rates occur in the winter or under low fertility and irrigation, while fastest growth rates occur in the summer or under high fertility and watering practices. Bermudagrass is a rapidly growing grass compared to zoysiagrass. Low-maintenance grasses like bahiagrass and centipedegrass are frequently mowed just to remove seedheads, rather than to cut leaf blades. Mow often enough so that no more than 1/3 of the blade height is removed per mowing. For example, if your St. Augustinegrass lawn is mowed at a height of 4 inches, it should be mowed when it grows to a height of 6 inches. Stress to the grass caused by mowing can be minimized by removing only 1/3 of the leaf blade at each mowing. It is important to always leave as much leaf surface as possible so that photosynthesis can occur.

Clipping Removal

On most lawns, grass clippings should be returned to help recycle nutrients to the soil. If the

lawn is mowed frequently enough, clippings cause few problems. Although many people believe that clippings contribute to thatch, research has shown that clippings are readily decomposed by microbial action. Thatch is the intermingled layer of already dead and decomposing organic matter on top of the soil and below the leaf blades. Excessive thatch can cause many problems for lawns, including poor water infiltration, increased insect and disease infestation, and poor turf quality. The tougher shoot components such as stems, rhizomes, and stolons are not easily degraded and may contribute to thatch. Problems may also arise when turf is mowed infrequently and excess clippings (e.g., clumping) result. When this happens, clippings can be raked to distribute them more evenly.

Figure 6. Excess Clippings

Mowing Equipment

Lawn mowers are available in a wide variety of sizes and styles with many features. The two basic types are the reel mower and the rotary mower. Variations of these include mulching, flail, and string mowers. Most mowers can be obtained as push or self-propelled models. Front, side, and rear-clipping discharge models are also available. The choice of mower often depends on personal preference. Points to consider when purchasing a mower are lawn size, turfgrass species, and level of lawn maintenance. Rotary mowers are the most popular for home lawn maintenance because of their low cost, easy maneuverability, and simple maintenance. A large motor is required to horizontally turn the blade. The grass blade is cut on impact with the mower blade. Rotary mowers can pose a safety problem if improperly used. Most rotary mowers cannot mow lower than 1 inch and are best used for higher mowing heights. The blade needs to be sharpened and balanced frequently for the best possible cut.

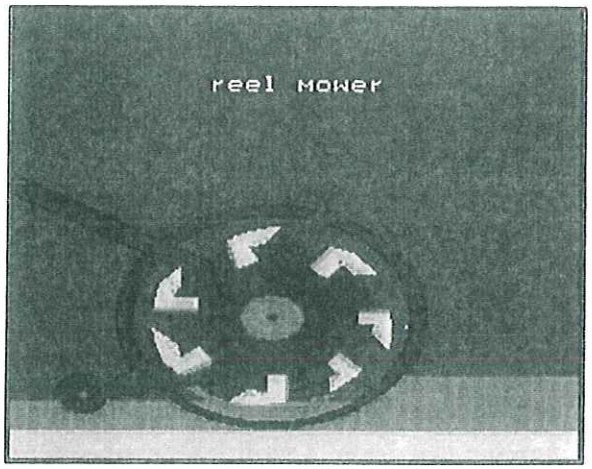

Figure 7. Reel Mower

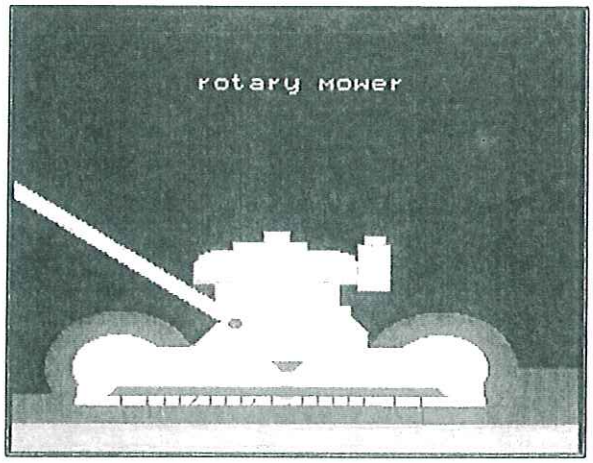

Figure 8. Rotary Mower

Mulching mowers are modifications of rotary mowers. These are designed to cut leaf blades into very small pieces that decompose more quickly than leaf blades cut by conventional mowers. The mower blades are designed to create a mild vacuum in the mower deck until the leaf blades are cut into these small pieces. Mulching mowers do not have the traditional discharge chute like most rotary mowers. Advantages and disadvantages of mulching mowers are listed below.

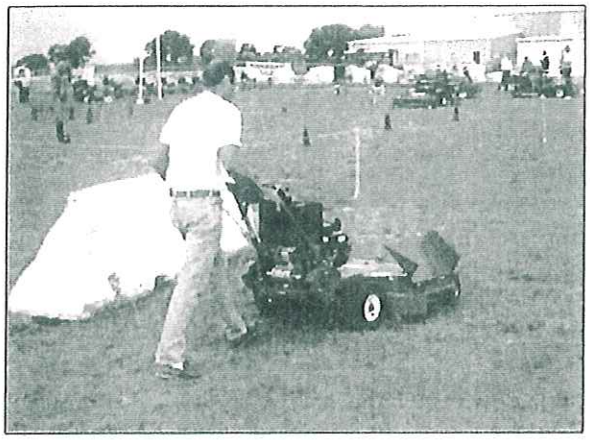

Figure 9. Mulching Mower

Figure 10. More Mulching Mowers

Advantages and disadvantages of mulching mowers are listed below.

Advantages of Mulching Mowers:

1. Clippings are returned to the turf where they will be decomposed very rapidly. This reduces yard waste and recycles nutrients to the turf.

2. Mulching prevents yard waste from contributing to landfill overuse and eliminates clipping collection and disposal costs.

Disadvantages of Mulching Mowers:

1. They are ineffective on wet or tall turf.

2. Blades must be kept sharp.

3. Current models are small and require higher horsepower.

Reel mowers are for highly maintained turf where appearance is important. Reel mowers cut with a scissorlike action to produce a very clean, even cut. They are used at cutting heights of 2 inches or less. The number of blades needed to produce a smooth, uniform cut will depend on the mowing height. Sharpening reel mowers is difficult and is best left to a professional mower repair service.

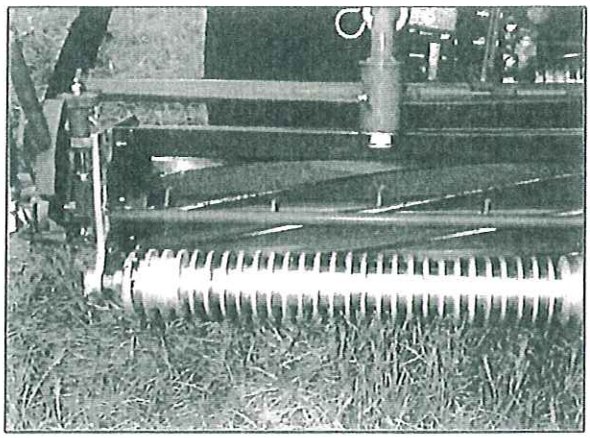

Figure 11. Flail Mower

Flail mowers have numerous, loose-hanging small knives that are held out by centrifugal force as the shaft rotates at high speeds. The blades sever grass by impact. Flail mowers are used for low-maintenance utility sites that are cut infrequently. Mowing quality is inferior compared to a reel or rotary mower, and the time it takes to sharpen the many small blades limits flail mower use.

String mowers are similar to rotary mowers, except the blade is replaced with a monofilament line. This is a definite safety feature when operating the mower in some hard to mow areas such as hillsides or ditch banks. A high-speed motor is needed in these mowers to spin the line fast enough for a clean cut.

Good Mowing Practices

Follow these procedures and precautions for safe, good mowing:

- Pick up all stones, sticks and other debris before mowing to avoid damaging the mower or injuring someone with flying objects.

- Never mow wet turf with a rotary mower because clippings can clog the machine. Mow only when the turf is dry.
- Sharpen the mower blade frequently enough to prevent a ragged appearance to the turf (Figure 13 and 14).
- Mow in a different direction every time the lawn is cut. This helps prevent wear patterns, reduces the grain (grass lying over in the same direction), and reduces the possibility of scalping (Figure 15).
- Do not remove clippings. If clumping occurs, distribute these by removing or by lightly raking. A leaf blower can also be used to distribute clippings.
- Check your mower every time it is used. Follow manufacturer's recommendations for service and adjustments.
- Adjust cutting height by setting the mower on a driveway or sidewalk and using a ruler to measure the distance between the ground and the blade.
- Never fill a hot mower with gasoline.
- Always wear heavy leather shoes when mowing the lawn.
- Wash mower after use to reduce rusting and weed seed movement.

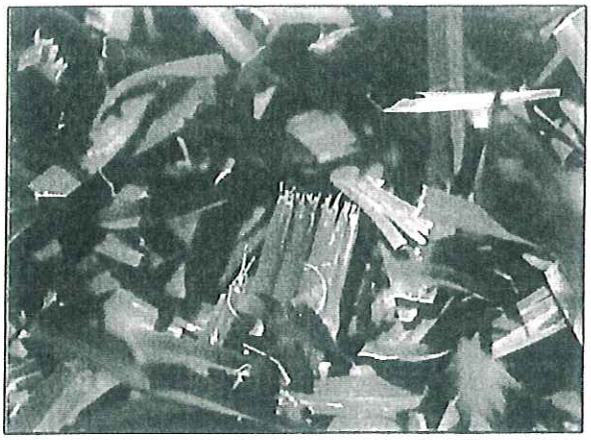

Figure 12. Ragged Turf Appearances

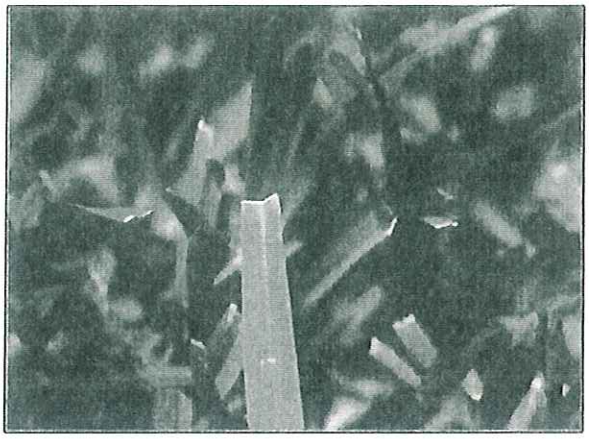

Figure 13. More Ragged Turf

Figure 14. Scalping

Table 1. Suggested mowing heights and mower types for Florida home lawns.

Turfgrass Species	Optimal Mowing Height (inches)	Mowing Frequency (days)	Preferred Mower Type
Bahiagrass	3.0 - 4.0	7 - 17	Rotary/ flail
Bermudagrass	0.5 - 1.5	3 - 5	Reel
Carpetgrass	1.5 - 2.0	10 - 14	Rotary
Centipedegrass	1.5 - 2.0	10 - 14	Rotary
Seashore Paspalum	1.0 - 2.0	5 - 10	Rotary/ reel
St. Augustinegrass	2.5 - 4.0*	5 - 14	Rotary
Zoysiagrass	1.0 - 3.0	10 - 14	Reel

* Dwarf cultivars of St. Augustinegrass (Seville, Captiva, Delmar) are the only cultivars of this species that should be mowed at 2.5". Other cultivars should be mowed at 3.5–4".