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EXTENSION

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FLORIDA CHESTNUT PRODUCTION INFORMATION

POTENTIAL & SUSTAINABILITY

Chinese chestnuts (Castanea 'mollisima Blume') and Chinese chestnut x American chestnut crosses can be grown in Florida. There are many small plantings of the chestnut in the North Central Florida area, with about 200 acres planted. Local nurseries have selections of chestnuts available for planting.

The fruit of the tree must be harvested every other day and stored under refrigeration because of the fungi and bacteria that attack the nuts on the ground. They should be stored under high humidity refrigeration to keep the nuts from drying and becoming too hard to eat.

Gloves should be used when harvesting because of the spines on the burr, which can be very painful.

Chestnuts are in high demand and some expansion in acreage is likely. They have relatively few pest problems and are a fairly sustainable crop for north central and north Florida.

PLANTING THE ORCHARD

Where possible, avoid selecting low-lying areas where cold air tends to collect during calm radiation freezes. Thick woods and undergrowth on the lower side of an orchard may prevent drainage of cold air away from the orchard thereby increasing the frost hazard.

Fertile sandy loam soil underlain with a reddish-yellow to red subsoil which has moderate internal drainage is best for most fruits. Deep sands which do not hold moisture are usable if properly irrigated and fertilized. Soils with gray or mottled subsoils are poorly drained and not suitable for fruit orchards.

A soil test should be conducted several months before planting an orchard. If results from the soil test indicate a need for phosphorous or lime, these should be applied and disked into the soil prior to planting the orchard.

Trees should be planted without delay when they arrive from the nursery. Recommended spacing is 20 feet by 20 feet. Prior to planting, keep the trees' roots moist and protected from dry air and direct sunshine.

If planting cannot be done when trees arrive, they should be heeled in a shady area. This is accomplished by digging a hole into which several plants can be placed and their roots covered with moist soil, sawdust, leaf mold, or some other suitable material. For easier handling, plants are usually slanted in the holes.

Planting time is a good time to inspect tree roots for signs of insects, disease nematodes, or other abnormalities. Keep the trees' roots moist during planting. Prepare the planting hole large enough so

that the root system is neither crowded, bent, or broken. Remove all extra long or broken roots before planting. Place plants upright and at the same depth that they grew in the nursery. Fill the planting hole with one or two shovels of soil at a time, packing the soil lightly around the roots to remove air pockets. Repeat this procedure until the hole is full of soil and the plant is firmly in place. Fertilizer should not be placed directly in the planting hole because this can result in high salt concentrations near the roots, which can damage young trees.

It is normally desirable to add water when the hole is about two-thirds filled with soil in order to settle the soil around the roots. After the water has soaked into the soil, finish filling the hole. Give particular attention to irrigation during the first year. A professionally designed microjet irrigation system is recommended. Adding mulch will conserve moisture, but it will not substitute for watering during dry periods.

VARIETIES

Dunstan Chinese x American hybrids (Revival, Willamette, Carolina, and Heritage or their seedlings); Lucky B. and Carpenter. Chinese varieties including AV-Cropper, AV-Leader, AV-Homestead, and Black Beauty.

FERTILIZATION

Apply 1 lb. of 10-10-10 fertilizer per tree the first season. This application should be made in May. After the first season, apply 10-10-10 fertilizer each February at the rate of 1 lb. for each year of age of chestnut trees with the maximum of 15 lbs. per tree.

Yearly application can be split into two applications, February and June.

PRUNING

Untrained fruit trees usually do not develop growth habits suitable for production of high yields of quality fruit. Begin tree training at planting to minimize the need for later corrective training. Some shoot tissue should be removed at planting time since many roots are lost or damaged during transplanting. This helps the tree become established and begins the training process. Generally, about 1/3 to 1/2 of the top should be removed at planting. The manner in which this is done depends on the training system.

Trees trained to the modified central leader system usually have five to seven well-spaced scaffold limbs. These scaffold limbs are 6 to 10 inches apart on the central leader and radiate from the tree axis in different directions. The lowest branch should be at least 2 feet above the ground. This training system is relatively simple, produces a strong framework and is well suited for chestnuts.

Trees are normally purchased as unbranched plants (whips) about 4 feet high. At planting they should be cut back to about 32 or 36 inches above the soil surface. This will stimulate development of lateral shoots, some of which will later become the leader and major scaffold limbs – the structural framework of the tree.

During late winter or early spring following the first growing season, continue selecting scaffold limbs. Remove any shoots originating from the main trunk which are not needed for scaffold limb development.

Cut back existing scaffold limbs slightly to encourage branching and spur development. The central leader should be cut back about 20 inches above the highest scaffold branch to encourage development of more scaffold limbs and maintain dominance of the central leader. In subsequent years, after five to seven properly positioned scaffold limbs have been developed, continue to remove shoots which compete with the central leader, and cut back scaffold limbs slightly to encourage branching and spur development. The central leader should be cut back sufficiently each year for the first three years to stimulate its regrowth and keep it dominant over scaffold limbs.

Mature chestnut trees require little pruning. It may be necessary to lift low branches to permit cultivation and to remove damaged branches.

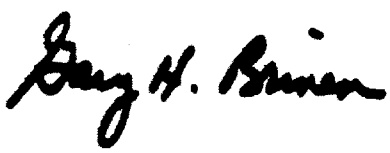
HARVEST

Chestnuts are fully mature when the bur splits. It is necessary to gather the nuts every other day and refrigerate under high humidity immediately to maintain quality. They are subject to decay and also will dry out without refrigeration. Gloves should be worn when harvesting because of spines on the burs. Harvesting equipment used for pecans can be modified to assist with harvest.

PESTS

Chestnuts have relatively few pest problems. Insects that have attacked chestnuts include chestnut weevils and yellow-necked caterpillars. Chestnut weevils lay eggs in burrs and the larvae feed on the nut kernels. Yellow-necked caterpillars hatch from eggs laid by a moth and feed on the leaves. They can rapidly defoliate a tree.

Diseases that attack chestnuts are few but can be serious. Chinese and hybrid chestnuts are resistant to chestnut blight, a fungus disease that virtually wiped out American chestnuts early in the 20th century. Chestnuts are susceptible to Phytophthora root rot, a fungus disease that occurs in wet sites. The most serious problem related to disease organisms is fungal mold and spoilage of nuts left on the ground or uncooled after harvest. It is essential to refrigerate immediately after harvest.



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CHESTNUT PESTICIDES

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INSECTICIDES

	BEARING TREES	
Chemical Name	Trade Name	Insects Controlled
Azadoracthtin	Superneem 4.5	weevils, aphids, scales, phylloxera, webworms, borers, caterpillars
Bacillus thuringiensis	MVP, MVP II, Mattch, M/C, Condor, Condor XL, Cutlass, Crymax, Lepenox	caterpillars
Beauveria brassiana	Mycotrol/Botanigard, Organigard	chewing insects
bitenzate	Acromite	mites
Carbaryl	Sevin Brand 50, Sevimol, Sevin XLR, Sevin RP2/RP4, Sevin 4F, Sevin	weevils, aphids, scales, phylloxera, webworms, borers, leafrollers
Diazinon	Ortho Diazinon	mites, thrips, aphids, leafhoppers, scales, mealybugs
Diflubenzuron	Micromite/Dimlin	caterpillars, weevils
Dimethoate	Dimethoate 4E	mites
Etoxazole	Zeal	mites
Harpin Protein	Messenger	strengthens plant
Hexythiazox	Savvy	mites
Horticultural Oil	Wilson, Hi Yield, Blackleaf, Bonide	mites, scales, whiteflies, mealybugs, aphids
Imidadoprid/Imidadoprine	Provado/Gaucho	scales, aphids, hoppers
Kaolin	Surround	various
Lambda/Cyhalothrin	Warrier/Proaxis	caterpillars, aphids, beetles
Malathion	Killo-Ko Malathion, Kleen-Krop	mites
Methoprene	Extinguish	ants
Methoxyfenozide	Intrepid	caterpillars
Phosmet	Imidan	borers, scales, weevils
Potassium Salts of Fatty Acids (soap)	M-Pede, Organica Neem Oil	mites, thrips, beetles, plant bugs, lacebugs, scales, whiteflies, aphids, mealybugs
Pyridaben	Nexter	mites
Pyriploxyfen	Esteem	ants
Pyriproxyfen	Knack	whiteflies, aphids
Rotenone & Pyrethrins	Pyrellin Ec	mites, thrips, whiteflies, aphids

INSECTICIDES
BEARING TREES

Chemical Name	Trade Name	Insects Controlled
Sucroseotanoate	Avachem Sucrase Odaneate	soft bodied insects
Spinosad	Spintor	caterpillars
Spirgdiclogen	Envidor	mites
Sulfur	many	mites
Tebufenozide	Confirm	caterpillars

NON-BEARING TREES

Chemical Name	Trade Name	Insects Controlled
Chlorpyrifos	Dursban Pro, Equity, Dursban 4E	borers, mites, thrips, beetles, weevils, plant bugs, scales, aphids, ants, caterpillars
Bifenthrin	Talstar	fire ants, root weevils
Pymetrozine	Endeavor	sucking insects (aphids, bugs, & scales)
Fenoxyearb	Logic	ants
Hydramethylnon	Amdro	ants

FUNGICIDES

Chemical Name	Trade Name	Diseases Controlled
Mefenoxam	Ridemul Gold	pythium, phytophthora, root rots
Azoxystrobin	Abound/Quadris ?	leaf spots
Pyradostrobin	Cabrio/Germ/ Pristine	leaf spots
Copper Hydroxide	Champion, Kocide	bacterial/fungal leaf spots
Phosphoric Acid	Nutrol	powdery mildew
Kaolin	Surround	leaf spots
Trichoderma Harzianum (fungus)		soil rot fungi
Triadimefon	Green Light	mildews, rots
Trifloxystrobin	Flint	leafspots
Bacillus pumilus	Sonata	soil rot fungi
Bacillus subtillus	Serenade	soil rot fungi
Triadimefon	Bayleton/Fungaway	leafspots/ mildews
For non-bearing trees: Myclobutanil	Nova	

NEMATODES

Chemical Name	Trade Name	Controlled
Myrothecium Verrucaria	Ditera	nematodes

VERTEBRATES

Chemical Name	Trade Name	Controlled
Capsaicin		mammals

HERBICIDES

PRE-EMERGENCE

Chemical Name	Trade Name	Weeds Controlled
Dichlobenie	Casaron	broad leaf/some grasses
Triflurilin	Treflan	broad leaf/some grasses
Oryzalin	Surflan	broad leaf/some grasses
Halosufluron	Sempra/Sardea	Sedge/broadleaf
Oxyfluoren	Goal, Galigan	Broadleaf/some grasses

POST-EMERGENCE

Chemical Name	Trade Name	Weeds Controlled
Glyphosate	Round Up Ultra	all
2, 4-D	Various Brands	broadleaf
Sethoxydryn	Poast	grasses
Paraquat	Gramoxone Max/Boa	all
Pelargonic Acid		all
Halosufluron	Sempra/ Sandea	sedge/broadleaf
Clethodim	Select	grasses
Carfentrozone	Aim	broadleaf
For non-bearing trees: Flumioxazin	Suregard	broadleaf