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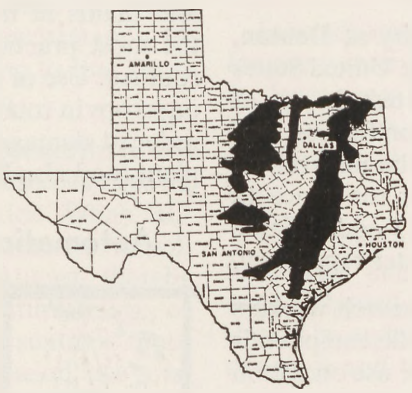
BRUSH CONTROL — A PROMISING NEW METHOD

Fenuron, a pelleted herbicide, may be the answer to eliminating post oak and blackjack oak from the 10 to 12 million acres of Texas land on which these oaks are major undesirable brush plants, according to Robert A. Darrow, Professor, and Wayne G. McCully, Assistant Professor, with the Department of Range and Forestry at the Texas Agricultural Experiment Station.

Approximately 85 to 90 percent of the infested area cannot be treated with recommended aerial sprays containing 2,4,5-T and 2-(2,4,5-TP) or silvex because of the hazard of drift damage to susceptible crops grown extensively throughout the region, such as cotton, watermelons, tomatoes, and peanuts.



Major Areas Covered with Post and Blackjack Oaks

Pelletized or granular herbicides virtually eliminate this hazard of drift at the time of application. With normal precautions, these pelleted urea herbicides can be used safely in areas with mixed livestock and cropping systems.

Pelleted and granular herbicides have been hand-broadcast on experimental plots ranging from 1/40 to 1/5 of an acre at College Station, Texas, and at the West Cross Timbers Experiment Station at Stephenville since 1954. Aerial applications have been made annually since 1955 on plots 3 to 5 acres in size at College Station and at other locations. In April 1956, a series of five aerial applications were made at representative locations in the West Cross Timbers and the Post Oak Belt. Granular and pelletized herbicides used in the tests include monuron, fenuron, 2,4-D ester, 2,4,5-T amide, and 2,4-D/borate and monuron/borate mixtures.

Post oak, blackjack oak, and winged elm were affected by all materials tested, particularly when applied at high rates. Fenuron and monuron were superior to the forms of 2,4-D and 2,4,5-T used in the control of oak, winged elm, and yaupon. Fenuron was superior to monuron in the control of post oak and blackjack oak.

Fenuron pellets may be hand-broadcast or applied by airplanes with modified dust or granular distribution equipment. The pellets should be applied at the rate of 16 pounds per acre. Aerial applications should not be conducted with crosswinds exceeding 15 miles per hour.

In Texas, fenuron pellets should be applied from early February to mid-May. During this period, precipitation usually is more dependable for dissolving the pelletized fenuron and leaching it into the soil, where it can be absorbed by roots of woody plants.

FEDERAL RESERVE BANK OF DALLAS
DALLAS, TEXAS

Post oak, blackjack oak, and winged elm are very sensitive to fenuron, and yaupon is intermediate in susceptibility. Haw, greenbrier, French mulberry, and other types of underbrush usually are not damaged by the recommended treatment. Desirable perennial native grasses are not damaged by fenuron pellets used at the recommended rate, but annual weeds and grasses may show some injury.

Since fenuron is a general soil sterilant when applied at heavy rates, extreme care should be taken to obtain uniform distribution of pellets over the soil surface to avoid damage to desirable forage grasses associated with oak brush. Pellets should not be applied where the herbicide will be absorbed by roots of desirable plants or will be washed from the area of application by hard rains. On the basis of present experience, fenuron applications should be limited to sandy or sandy loam soils with good drainage, according to Messrs. Darrow and McCully.

Metallic Compounds for Treating Cotton Fabrics

The Texas Woman's University at Denton, under a research contract with the United States Department of Agriculture, will test the use of metallic compounds to treat cotton fabrics. Application of the compounds will be undertaken to give cotton fabrics (1) better resistance to weathering, mildew, and rot; (2) added flame resistance; and (3) increased water repellency.

In a previous study, USDA research workers screened a large number of metallic compounds which are potentially valuable for use on cotton fabrics. Several of the most promising of these chemicals have been selected for more extensive experiments, and the properties of cotton fabrics treated with them will be evaluated.

The screening experiments indicate that cobalt metaborate and hydroxides of aluminum, magnesium, and cobalt may be able to give cotton greatly improved resistance to weathering, mildew, and rot. Aluminum hydroxides also provide flame resistance, and cobalt metaborate increases the water repellency of cotton fabric.

The purpose of the research now planned at the Texas Woman's University is to determine whether it is feasible to use these compounds to improve fabrics of various kinds for both indoor and outdoor uses. This project is part of an extensive program conducted by the Southern Utilization Research and Development Division of the Agricultural Research Service at New Orleans, Louisiana, to increase consumption of cotton through new or improved uses.

Cotton Root Rot Takes Toll

Many cotton plants died paupers this year as a result of cotton root rot, says C. B. Spencer, Chairman of the Cotton Production Committee of Texas. The fungus that causes this disease is present in most lime soils, and conditions in the State have been ideal for it to kill cotton.

Root rot is most deadly when the moisture level and temperatures are high. In addition, damage is more severe when the soil or plants are in poor condition. Most of the dead cotton in Texas this year was found in early planted fields, where plants were weakened by seedling diseases.

Good farming practices, which keep the soil and plants in the best possible condition, are the most practical solution to the problem of root rot. Use of legumes and other soil-improving crops in rotation ahead of cotton has greatly reduced damage from the disease. The use of plant food also helps prevent loss from root rot.

Automation in Hog Production

Automation in the care and feeding of hogs has been made possible through research conducted cooperatively by H. B. Puckett, Engineer with the United States Department of Agriculture, and E. L. Hansen, Professor of Agricultural Engineering, and S. W. Terrill, Professor of Animal Science, both of the Illinois Agricultural Experiment Station.

According to Mr. Puckett, the cooperative project was undertaken to determine the engineering requirements of a system that would have the advantage of raising hogs in confinement without the relatively high labor costs

usually involved in such operations. He points out that mechanization of field crop output has increased production by 300 percent per man-hour since 1939, while mechanization of livestock operations has brought about an increase of only 20 percent.

The new hog-raising facilities used in the studies at Urbana, Illinois, feature a feeding system that (1) automatically maintains a constant supply of feed, (2) provides given quantities of feed at specified times, or (3) can be controlled manually to supply feed as the operator desires.

Housing and feeding accommodations are restricted in order to force hogs that are neither eating nor resting into the exercise area. This arrangement has proved helpful in maintaining sanitary conditions in the housing and feeding quarters.

Israel Sweet Clover

Israel—a new variety of annual, white sweet clover — is similar to Hubam sweet clover in general appearance but grows taller, has larger stems and leaves, and takes approximately 60 days longer to mature, according to the Texas Agricultural Experiment Station.

The new variety is adapted primarily to the southern part of Texas but has also been grown successfully in the northern section. When fall-seeded in south Texas, Israel sweet clover will continue growing until early August, thereby providing a good legume for pasture, silage, or green manure during most of the summer. Since Israel has a longer growing season, its total production exceeds that of other varieties. With adequate soil fertility and moisture, yields as high as 9 tons per acre have been obtained.

Certified seed growers may obtain foundation seed of Israel sweet clover from the Foundation Seed Section, Texas Agricultural Experiment Station, College Station, Texas.

A cow must drink at least three times as much water as the amount of milk she gives, say specialists of the Louisiana Agricultural Extension Service. Depending on the weather, her feed, and the quantity of milk she produces, a cow may need as much as 18 gallons of water a day.

Evergreen Conifers Best Windbreaks

Evergreen conifers, such as ponderosa pine and red cedar, make the most effective windbreaks, according to the United States Department of Agriculture. A recent examination of shelter belts in the Great Plains revealed that 20-year-old windbreaks containing pines and cedars are still increasing in effectiveness, while many of those without conifers are deteriorating.

Conifers show advantages over hardwoods as year-round protection for homes, gardens, fields, wildlife, and livestock. The conifers (1) retain their foliage during the winter, (2) are longer-lived, (3) are better adapted to dry upland sites and periods of drought, and (4) are damaged less by livestock than are most hardwoods.

In windbarrier planting, narrow belts at more frequent intervals provide greater protection for large areas than do a fewer number of wide belts. If more rows of conifers are included, windbreaks of three to five rows can be effective.

Each row should be uniform in height; therefore, trees that grow at different rates should not be planted in the same row. Dead seedlings should be replaced promptly in order to prevent openings and to maintain a uniform height.

In plantings of three or more rows of conifers, one row should be of a species which increases the height of the shelter belt. However, species that differ greatly in rate of growth should not be planted in adjacent rows because the faster-growing varieties will suppress or kill out the slow-growing species.

If given proper care, existing shelter belts can be improved, and new ones will thrive better. The planted trees should be kept free of weeds and should not be pruned. Trees or shrubs interfering with conifers should be cut back or removed. Most importantly, livestock should be kept out of the shelter belts.

Malathion Approved for Stored Grain

The Pure Food and Drug Administration has approved the use of malathion for protecting stored grain against insects. A tolerance of eight parts per million has been established, according to Extension Entomologists F. M. Fuller and C. F. Garner with the Texas Agricultural Extension Service.

The insecticide may be used on stored barley, corn, oats, rice, rye, grain sorghums, wheat, and peanuts. The approved dosage is 10 ounces of actual malathion per 1,000 bushels mixed with the grain and 5 ounces of actual material per 1,000 square feet of grain surface.

Messrs. Fuller and Garner say that only premium-grade malathion should be used. One pint of 50 percent premium-grade malathion mixed with 2 to 5 gallons of water will treat 1,000 bushels of grain. The insecticide may be applied as the grain is placed in final storage. A special 1 percent malathion dust impregnated in wheat flour also may be used. This dust should be applied at the rate of 60 pounds per 1,000 bushels of grain.

Persons using malathion should make frequent checks for insects in all stored grain, since no research information is available on how long the insecticide will protect grain against insects under Texas conditions or whether it will kill weevils and moths in field-infested grain. Fumigation is recommended if insect infestations occur.

Copies of L-217, entitled *Stored Grain Insects*, may be obtained from the offices of local county agricultural agents. The leaflet contains information on fumigation and offers other suggestions for maintaining the quality of stored grain.

Crown Gall Troublemaker

When plants die or fail to make satisfactory growth, crown gall may be the troublemaker, says Harlan Smith, Extension Plant Pathologist with the Texas Agricultural Extension Service. This bacterial disease attacks fruit and nut trees, berry and grape vines, ornamental shrubs, rose bushes, and many other plants. Young plants are attacked more often than older ones.

Crown gall derives its name from the large, rough, roundish, woody swellings—or galls—which the disease produces. The galls are found on the stem or trunk of the affected plants at or just below the soil surface and on the roots.

Mr. Smith advises the removal and immediate burning of small plants which are infected with crown gall. All nursery stock should be examined carefully for galls before purchasing, and susceptible plants should *not* be placed in soil where the disease has been found.

The pathologist cautions against damaging the crown or roots of plants during cultivation and points out that soil insects and nematodes should be controlled, since wounds of any type will increase the possibility of infection.

To help prevent infection, roots of most nursery stock may be treated before setting. The roots of these plants or trees (except peach and apple) should be treated for 10 minutes in a solution of corrosive sublimate or Semesan, according to Mr. Smith. He suggests the use of one part of corrosive sublimate (bichloride of mercury) to 1,000 parts of water or an ounce of Semesan to 3 gallons of water. Peach and apple root stocks should be soaked only 1 minute to avoid possible injury.

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Spot treating with oils or dalapon is the newest, easiest, cheapest, and most effective method of controlling Johnson grass in row crops, says Fred Elliott, Extension Cotton Work Specialist with the Texas Agricultural Extension Service.

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The average American eats an egg almost every day and slightly over half a pound of poultry each week. Louisiana Agricultural Extension Service specialists point out that the popularity of poultry and eggs is nationwide and is not affected greatly by family income.

The FARM AND RANCH BULLETIN is prepared in the Research Department under the direction of J. Z. Rowe, Agricultural Economist.