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## For Your Interest

Agricultural and Home Economics Experiment Station

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# For Your Interest

## home and family

### Seek to Predict Skill In Clothing Construction

HOW CAN WE help today's young people achieve their goals? Research workers at the Experiment Station believe that one way is to study their motivation to learn. Motivations of tenth grade girls in seven Iowa schools are being tested at present. It is hoped that the results will aid teachers in understanding and guiding their students.

An attempt also is being made to predict the ability of high school pupils to construct clothing. A series of tests was given to 188 pupils in the Ames schools, and the resulting scores were examined to determine how well these tests measured actual ability. Three of the tests—the Clothing Construction Test, the Miller Survey of Visualization Test and the Finger Dexterity Questionnaire—gave the best estimates of ability.

This study is being conducted under the direction of Hester Chadderdon of the Experiment Station with the cooperation of the State Department of Public Instruction.

### Study Role of Fat in Nitrogen Metabolism

PROTEIN DEFICIENCY, accompanied by restriction in calories, has been shown to produce large losses of body nitrogen in adult rats when carbohydrate has been used as the only source of energy.

Under these conditions, including fat in the diet can protect body protein to some extent.

Work is in progress to determine what changes in metabolic patterns may be associated with the nitrogen-sparing effect of dietary fat observed. In one set of experiments, several hormones which have been involved in nitrogen metabolism were given to adult rats under the experimental condition just described. Cortisone injections at relatively high levels increased nitrogen losses with either the fat-free or the fat-containing diet, but this effect was relatively greater in animals receiving fat. On the other hand, when testosterone, a hormone known to cause nitrogen retention in adequately fed animals, was

given to carbohydrate-fed rats, excessive nitrogen losses, large weight losses and a high mortality rate resulted. Adding fat to the diet protected the animals from the harmful effect of testosterone.

Another part of the experiment dealt with liver phosphatide metabolism in rats on protein-free diets, with and without added fat. Results showed that fat helped to maintain the quantity, renewal rate and composition of liver phosphatides.

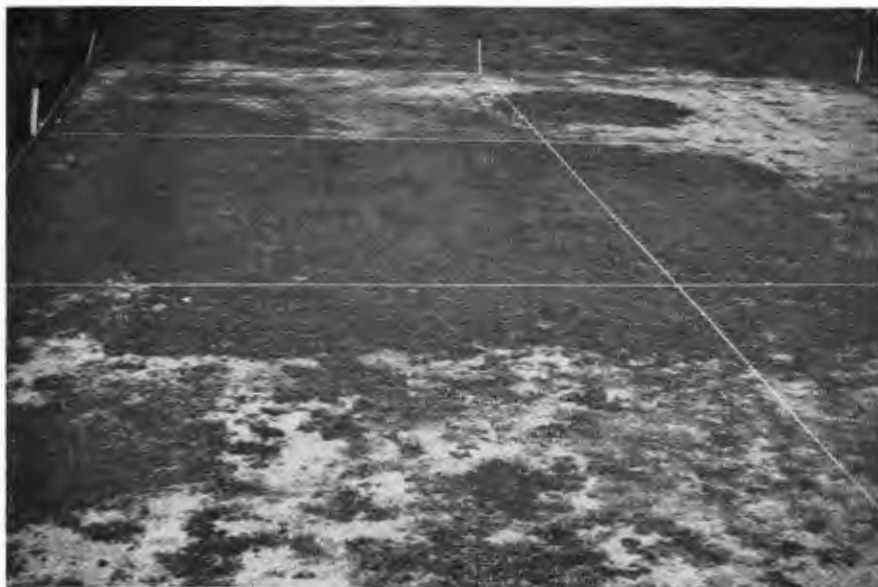
Researchers also plan to study enzyme activity as a possible index of protein nutrition. They hope that this will show some of the differences in the way that the two energy sources, carbohydrates and fat, are used.

Lotte Arnrich, Pearl Swanson, Jacqueline Dupont and Jean Clifford of the Experiment Station are working on these studies.

## horticulture

### "Golf Green" Lawns With Little Upkeep?

FOR THE PAST 20 years Iowa State has been one of the Agricultural Experiment Stations cooperating with the U. S. Golf Association Greens Section in evaluating bentgrass species and



This photo shows some of the test plots at Iowa State being used in testing and evaluating bentgrass strains for lawn and other turfs.

strains for putting greens. The goal has been to provide the best adapted bentgrass strains for the various conditions throughout the state. In more recent years, there's been greater recognition of the importance of attractive landscaping and home grounds and of improved recreational and sports facilities. This has increased the emphasis on research leading to better turf for Iowa lawns, athletic fields and golf courses.

Three experimental bentgrass strains looked particularly good—with minimum maintenance—in recent tests directed by Eliot C. Roberts. Two of the strains were originally selected from the Wash-

strains to warrant propagation in larger plots where more extensive studies may be made.

#### **List Recommended Watermelon Varieties**

CHARLESTON GRAY, BLACKSTONE and HOPE DIAMOND watermelon varieties are recommended for planting in Iowa. These varieties performed well in trials of 13 watermelon varieties conducted at the Muscatine Island Field Station under the direction of Lewis Peterson and L. C. Peirce of the Iowa Experiment Station. The watermelon varieties were tested as a part of the southern cooperative watermelon trials.

the amount of solid red color. On Delicious apples, nitrogen fertilizers increased yields and decreased size and color. Adding phosphorus had little effect on the factors studied for either variety—except for a slight decrease in color on Jonathans.

Mulching gave increased yields with no change in fruit size for both varieties. Less red color on the fruit was associated with mulched trees.

Trunk diameters were also measured as an indication of tree size and growth. These measurements showed little differences between fertilizer or cultural treatments. Delicious trees have grown more in the past year than Jonathans, but still have smaller trunk diameters.

These experiments are a part of a larger study of problems in fruit growing on Ida and Monona soils in southwestern Iowa. C. C. Doll of the Experiment Station is directing this study.

#### **Find Diuron Suitable For Weed Control With Young Grape Plants**

AFTER SEVERAL years of study, it is now generally accepted that 2 to 4 pounds per acre of diuron as a pre-emergence treatment can be applied to mature grapes with excellent results. But the problem was somewhat different with young grapes because young grapes are more sensitive to herbicidal activity. Recent tests, however, indicate that diuron at 2 to 4 pounds per acre can be used on young grapes as well as on mature grapes.

In the most recent tests, four herbicides were applied to a newly-planted vineyard under the direction of C. C. Doll of the Experiment Station. Atrazine at 7, 14 or 21 pounds per acre was the most effective herbicide, but grape plants were severely injured by its use. Diuron at 3.2 and 6.4 pounds per acre gave about 90 percent control of all weeds during the growing season with no injury to grapes. Simazin at 2 and 4 pounds per acre was only 50 percent effective in this test, and Urox was erratic in pattern and was not considered effective.



The use of some herbicides results in damage to Concord grapes. Some herbicides result in chlorotic veins as shown by the larger leaf. Iron deficiency chlorosis (inter-veinal) is illustrated by the small leaf.

ington Golf and Country Club in Arlington, Virginia. The third is a selection from the Des Moines Golf and Country Club. Desirable growth characteristics searched for, in addition to low management needs, include winterhardiness, tolerance to high summer temperatures and humidity, resistance to disease infections and a high degree of vigor coupled with resistance to overgrowth and succulence. Results have been sufficiently promising with these three

#### **Test Effects of Fertilizer, Mulch For Apple Orchards**

APPLE TREES in the Iowa experimental orchard in southwestern Iowa are reaching the age where the fruiting from fertilizer applications and other cultural treatments can be analyzed.

A summary of 1959 results shows that nitrogen had very little effect on the yield of Jonathan apples. It did, however, increase the size of the fruit and decrease

# soils

## Obtain Statewide Soil Moisture Sample

SOIL MOISTURE from areas all over Iowa was sampled in April, June, August and November, 1959 by Robert Shaw and co-workers at the Experiment Station.

In April, the supply of moisture in the soil was normal to above normal in the southern two-thirds of the state. There were from 8 to 11 inches of plant-available water in the top 5 feet. The only area which had below normal soil moisture was northwest Iowa—where the amount was under 2 inches. Soil moisture had increased an average of 2.8 inches under corn and 3.0 inches under meadow from the previous year.

Precipitation between April and June averaged 9.5 inches; normal precipitation is 7.5 inches. Average soil moisture under corn increased 1.2 inches; by June moisture under meadow decreased 0.5 inch. The average daily loss of moisture was 0.14 inch from corn and 0.17 inch from meadow. Run-off from corn must have been considerable.

Precipitation between June and August averaged 8 inches; normal precipitation is 7 inches. Much of this fell as heavy showers. Soil moisture under corn decreased 3.7 inches, and moisture under meadow decreased 1.4 inches even with the above-normal rainfall. Average daily loss was 0.19 inch from corn and 0.16 from meadow.

Precipitation between August and November averaged 11 inches; normal precipitation is 10 inches. Soil moisture under corn increased 4.1 inches; under meadow 3.0 inches. Average daily loss was 0.08 inch from corn and 0.10 inch from meadow.

## Collect Nematodes From Iowa Soils

A COLLECTION of nematodes found in cultivated Iowa soils is being prepared under the direction of Edwin T. Hibbs and Don C. Norton as an aid in determining

the types and relative numbers of nematodes in the state. The researchers hope to study the way in which nematodes interact with other micro-organisms in the soil and to learn their role in plant disease. Also under study is nematode damage to corn and alfalfa in Iowa and methods of controlling harmful nematode populations.

## What About Mulches To Start Vegetation On Sandy Backslopes?

VARIOUS MULCHES and soil treatments were tested for their ability to help establish vegetation and control erosion on sandy backslopes near Lucas, Iowa. Straw mulch, straw plus netting, asphalt, arquad and starch plus a treatment of fine mesh netting were the treatments tested.

Germination and early plant growth were fastest under the asphalt film and slowest under the straw mulch, reports W. D. Shrader, who directed this study. At the middle of the season, the number of plants per square foot was highest under asphalt, arquad and starch and lowest under straw. Straw mulch seemed to slow down plant growth.

Erosion control was poor with the starch and arquad mulch and also where there was no mulch used at all. But the straw and asphalt mulch gave good erosion

control. Netting held straw mulch in place better, while fine-weave netting showed some promise for erosion control during stand establishment.

The USDA and the Iowa State Highway Commission cooperated with the Experiment Station in this study.

## Study Effect of Crop Residues On Corn Yields

HOW MUCH nitrogen is released when crop residues are applied to a field? Lloyd R. Frederick, J. M. Bremner and A. D. Scott of the Experiment Station set up a field study to find out.

They applied 20 tons of alfalfa hay, soybean straw and cornstalks to the experimental plots. The plots were plowed and fitted each year with Piper Sudangrass to measure available nitrogen in the soil.

Results from 5 years of Sudangrass harvests show that the yield increase from alfalfa hay residue was nearly the same for the first 2 years, then the yield decreased, but was still one-half ton more than the yield from the field where no residue was applied. The yield increase from the use of cornstalks was smaller than from alfalfa. Soybean straw increased grass yields for the first 3 years, then the yield increase began to decline.



Sudangrass was used to measure nitrogen availability after heavy applications of crop residues. The nitrogen availability was greatest from alfalfa hay, less from cornstalks and least from soybean straw.