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For Your Interest

Agricultural and Home Economics Experiment Station

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Test Herbicide Use With Nursery Stock

An effective herbicide program for controlling broad- and narrow-leaved weeds in container- and field-grown nursery stock is the goal of research conducted by J. P. Mahistede of the Experiment Station. Redbud, honeysuckle, crabapple and forsythia plants were grown in containers in which various types of "alien" seeds were planted. Various herbicides with different rates of application then were used to learn how well they control the weeds and to learn their effect on the nursery stock.

In one trial, CDAA, at the rate of 8 pounds per acre, gave 100 percent control of wheat "weeds" throughout a 4-week period. With lima bean "weeds," only 50 percent control was recorded by the end of the third week. There were no visible signs of injury to the ornamentals during the test. Sesone at 8 pounds per acre and a combination of CDAA and sesone gave similar control with no noticeable injury to the forsythia or crabapple plants.

In another trial, five herbicides were tested in containers planted with redbud and honeysuckle. The "alien" seeds were lima beans and wheat. Simazin at 3 pounds per acre gave 100 percent control of both beans and wheat by the end of the fourth week. Foliage of the ornamentals was damaged by this treatment, but fertilization lessened the severity of the leaf symptoms. Though slower acting than simazin, monuron gave similar control and symptoms. The weed control from amino triazole was unsatisfactory in this experiment. CDAA at 5 pounds per acre gave 33 percent control of beans and 95 percent of wheat by the end of the fourth week. Damage to ornamentals was minimized by the application of fertilizer.

List Outstanding Berry Varieties and Selections

Armore strawberry variety has given the best record of five varieties examined in 3 years' trials conducted by E. L. Denisen. Armore is a late variety with large berry size and a good yield record. The other varieties tested (listed in the order of their performance) were: Dunlap, Robinson, Premier and Blakemore.

One selection from the station strawberry breeding program—

These two photos show some of the results in testing herbicides with nursery stock. Container at left was treated with the equivalent of 8 pounds per acre of a Randox and Crag Herbicide mixture. The container at right received no herbicide treatment.
These are typical berries of a soon-to-be-announced strawberry developed at Iowa State especially for home garden production.

No. 1-35—has had a consistently good record of production, plant making, dessert quality and freezing quality. It isn't hard enough to become a shipping berry, however. Its principal use is for home production and local markets—the main outlets for Iowa-produced strawberries. Because of its earliness, high yields, large size and excellent record, it's being increased for introduction as a variety.

Of notable interest among recent seedlings in the breeding program is a white strawberry which will be used in genetic studies. Other promising seedlings show various attributes—such as strong fruit stems, attractive calyxes, disease resistance and vigor, all of which are desirable to combine into a single variety.

Principal emphasis in the raspberry breeding program, according to Jensen, is currently on red raspberries. Seedlings obtained from seed shipped from Po and Sweden showed excellent winterhardiness in 1957-1958. They made good growth during 1958 and should fruit for the first time in 1959. Plans are to try to combine the hardiness of these seedlings with the fruit size and quality of Latham, Lloyd George and other domestic varieties.

Norland Potato Variety Recommended for Iowa

A new potato variety, Norland, has been recommended for Iowa to satisfy the demand among many growers for an early red potato with scab resistance. Norland is very early and has a fair amount of scab resistance. Its main defects are lower solids than are desirable and a color that isn't a deep red.

Norland Potato Variety Recommended for Iowa

A NEW POTATO VARIETY RECOMMENDED FOR IOWA

The capacity of their machinery just as much by reducing time losses in the field as by increasing the sizes of their machinery.

Barnes and Link summarize the three main conclusions from their studies of machinery size so far:

(1) The capacity of a farm machine for doing work does not increase in direct proportion to its size. In some cases, you can gain more by streamlining your method of operating a machine than by simply getting a larger one.

(2) The best size of any farm machine is the one which gives you the greatest return over the cost of buying, operating and maintaining it—not the size which, on the surface, may appear to give the smallest total cost or the greatest total return.

(3) Good care and maintenance are important in extending the useful life of farm machinery. This lowers annual depreciation and, therefore, the costs of owning and operating your machinery.

An earlier and more complete report on this research was published in the February 1959 issue of IOWA FARM SCIENCE (see "Is Bigger Farm Machinery the Answer?" in that issue or reprint FS-798).
Examine Effectiveness Of Teaching Human Behavior in Schools

CAN WE TEACH young people how to understand human behavior better? How well can students apply generalizations about human behavior which they are taught in school to their own personal lives and experiences? These are some of the questions researchers are hoping to answer through a concerted study on the improvement of relationships between members of homemaking classes resulting from training in understanding casual factors in human behavior.

Hildegarde Johnson, Irene Roland, Damaris Pease, Woodrow W. Reed, Mattie Pattison, Virgil Lagomarcino, Hester Chadderdon and Charlotte Whitney are key personnel conducting this study.

What About School-Age Marriages?

EARLY MARRIAGES have been increasing in this country since about 1900. And marriages among high-school-age couples have recently shown a striking increase. 

Marriages among persons 18 or under have increased about 7 percent for men and 28 percent for women from 1940 to 1956. To learn some of the factors behind these early marriages, Lee Burchinal of the Experiment Station interviewed 60 girls who had married before high school graduation and 60 girls who had not married. Detailed results of this study were published in a series of three articles in IOWA FARM SCIENCE (Farm Science reprints FS-761, FS-800 and FS-804). Here, in brief, however, are some of the findings:

Youthful marriages are slightly more characteristic of urban areas than of rural areas in Iowa. And most youthful marriages are non-elopements — 73 percent of all 1956 marriages of Iowa brides 18 years of age or younger were in their home towns. Only 8 percent of these marriages were not conducted by a clergyman.

As compared with girls who had not married before high school graduation, the girls who were married before graduation had: started dating younger, gone steady more frequently and at a younger age, been “in love” a greater number of times, begun to date more seriously sooner, had a larger group of close friends who also married before graduation, more frequently dated men older than themselves, more frequently had mothers who also married young and more frequently came from homes of lower social-economic levels.

Most of the youthful marriages were not established on an independent or secure financial basis. About half of the couples had received or were receiving financial help from their parents. Over half, 54 percent, of the girls wished they had finished high school before their marriages. Also, about 38 percent of the girls were pregnant at the time of their marriage.

Seek Incidence Of Blood Parasites In Pheasants, Quail

AS PART OF THE wildlife management research program, researchers at the Experiment Station, in cooperation with other agencies, are trying to determine the incidence and possible effect of blood parasites on pheasants and bobwhite quail in Iowa. Evidence of some of these parasites...
was found in the blood of mourning dove, Brewer's blackbird and a blue jay in Winnebago County. This, says A. O. Haugen who is directing the research, indicates the possibility of such parasites in pheasants — though examinations to date have not revealed any parasitism of this game bird.

**Is Control of Infectious Diseases Contributing to Increased Life Span?**

Over the past 50 years, the expectation of life at birth in the United States has increased by more than 10 years. This increased life span has sometimes been attributed to the control of several infectious diseases. The theory is that in the past these diseases have created much stress on the individuals unfortunate enough to "catch" them — even though they may have ultimately recovered.

This theory, however, whereby earlier stress is supposed to reduce life span, has never been tested. Research geneticists at the Experiment Station report that their strains of mice — with different degrees of susceptibility to mouse typhoid — offer excellent subjects with which to analyze this explanation for the increase in life span.

Ten strains of mice, ranging in susceptibility from 0 to 100 percent, are being used to test the theory. The work is under the direction of John W. Gowen and Janice Stadler.

**Caddisflies, Mayflies Are Nuisance on River**

*Caddisflies and Mayflies* create a serious nuisance and health hazard during periods of their mass emergence along the Mississippi River. For the past 2 years, the National Science Foundation has helped support Experiment Station research to determine the distribution and ecological relationships of these insects during their aquatic life.

The mayfly, which emerges in quantities to interfere with river and highway traffic, is *Hexagenia bilineata*. The naiads burrow in soft mud deposits. On several occasions, large numbers have emerged almost simultaneously from areas as much as 200 river miles apart. These insects apparently serve as an important food item for many species of fish. The caddisflies, causing most of their nuisance at Keokuk, are *Cheumatopsyche campylus*. The larvae build nests on rocks and solid structures where the river current is sufficient to prevent deposit of silt.

Conducting the research on these insect pests as a part of a larger study on stream biology as related to fish production are Kenneth D. Carlander, Calvin R. Fremling and David T. Hoopes.

**soils**

**How Do Rotations, Tillage Influence Soil and Water Loss?**

Soil and water losses from land in corn, oats and meadow have been measured for a number of years on five important soil types in Iowa. The main goals of this research are: (1) to see how various rotation and tillage treatments influence soil and water losses, (2) to compare the erodibility of the five soils and (3) to learn the effect of rainstorms of various intensities on the erosion of soils.

Results from 1958 tests on Ida silt loam showed that losses from corn surface-planted up-and-down hill were about twice those from contour surface-planted corn and about four times the losses from contour-listed corn.

On Grundy silt loam, lowest soil and water losses were from continuous corn mulch tilled. Next lowest losses were from continuous corn with no special tillage treatment. W. C. Moldenhauer, who is directing this study, suggests that the low soil loss from this latter treatment may have been the result of a buildup of surface residue over the years when these plots were mulch tilled (1954 through 1956). Soil and water losses from corn grown in rotation with meadow were not excessive.

**Chemical Treatment Reduces Water Seepage From Reservoir**

_treating a reservoir or pond bed with tetrasodium pyrophosphate will reduce water seepage from the pond or reservoir to some extent, report H. P. Johnson and co-workers of the Experiment Station. The bed of the Tom King Watershed Reservoir, Monona County, was treated with 0.1 pound of tetrasodium pyrophosphate per square foot. Observations of the relative drop in water level before and after treatment revealed that the treatment had reduced the seepage rate to about one-fifth of that which had occurred before the bed was treated._

This study will be extended to treat two other Iowa reservoirs and to test the effectiveness of bentonite treatments for this purpose. The Soil Conservation Service is cooperating with the Experiment Station in this research.

**Study Nematodes In Iowa Soils**

*Nematodes* in Iowa's agricultural soils are under study by researchers at the Experiment Station. In the 1958 program, which covered the second year of the study, soil fumigants were tested on six different soil types. The goal was to observe plant performance following reduction of nematode numbers and to discover infestations that may be damaging crops. Results so far have been variable, and further research is needed to determine fully the effects of nematocides on nematode numbers and crop yields in fumigated soils.

Other aspects of the research on nematodes at the station include: surveying cultivated soils for types and relative numbers of nematodes, intensive soybean cyst nematode surveys and preparation of a permanent slide collection of nematode types found in Iowa.

Key personnel engaged in this research are E. T. Hibbs, M. J. Ulmer, E. W. Hansen, C. P. Madamba, D. C. Foley and M. C. Shurtleff.
LEFT: This tomato plant, grown commercially at Muscatine, was severely damaged by root knot nematodes; note swollen roots.

BELOW: Thousands of female nematodes like these develop in the infested and swollen roots.

RIGHT: Eggs, shown within the body of a female nematode, are nearly ready to hatch.

A hand-operated press is used to shape aluminum mounts for permanent mounts of nematodes.

Here is a part of the permanent collection of nematodes mounted for additional studies.

LEFT: This picture shows a gravity flow nematocide applicator. Flow is controlled by the coils near the center of the photo.

RIGHT: This is a pressure applicator. The chisels, behind which the nematocide is released, are spaced about 10 inches apart and operated at a depth of about 8 inches.