

AGRICULTURE

Spraying Corn from Ground Better Than Airplane Dusting

► GROUND RIG sprays of DDT may replace airplane dusting for corn earworm, a serious sweet corn pest.

O. G. Bacon of the University of California College of Agriculture, Berkeley, in the third year of field trials against the pest, found that three applications of DDT with a ground rig gave very good control at less cost than the usual five to seven airplane dustings per season.

The ground rig used was equipped with a boom fitted with spray nozzles to spray two rows of corn. As it passes through the corn field it shoots the spray on both sides of the plant aiming at the area where the ears are growing. Commercial machines are capable of spraying as many as six rows of corn.

Several new insecticides were used in the tests but DDT gave the best results.

In general, airplane applications have not resulted in as good control as sprays applied by ground equipment. The airplane dustings do not always cover the corn silk, where the chemical is most needed. The problem of dust drift to adjoining fields makes airplane applications unsatisfactory at times.

Individual hand brushing with dust and individual hand spraying with a paint-type spray gun were also tested using DDT and other chemicals. Both methods of application gave good results but required a large number of workers to cover the fields quickly.

Science News Letter, January 5, 1952

BOTANY

Mums Bloom Any Month When Day Length Shortened

► CHRYSANTHEMUMS CAN be tricked into blooming at any time of the year and the principles of producing hybrid corn can be applied to roses.

Leonard E. Carrier, landscape gardening and ornamental horticulture expert at the University of California's College of Agriculture, Davis, is producing greenhouse chrysanthemum blooms all during the year by shortening the daylight periods after the plants are about a month old.

If the plants get more than 13 hours of sunlight they continue to grow. When the length of day is cut down to nine hours mums will begin to bloom in about two months. It is necessary to keep night temperatures about 60 degrees Fahrenheit in the greenhouse where the mums are growing.

On long days the day length is shortened by shading the plants with blackout curtains, Mr. Carrier said.

To grow plants during short winter days artificial light is used to lengthen the daytime period. After the plants are about a

month old they are put on a nine-hour daylight schedule for bloom production.

The University of California floriculturist is also hoping to produce vigorous roses of good color and quality that are disease resistant.

Several inbred lines from a parent rose are being produced by "selfing"—pollinating a rose with its own pollen. Each of these lines will be further selfed. Selfed lines are more consistent in their makeup than crossed lines.

Third or fourth generations of these selfed lines will then be crossed with each other. The strong points of two or more inbred strains will, Mr. Carrier hopes, combine to produce outstanding, vigorous roses.

Science News Letter, January 5, 1952

CHEMISTRY

Turn Clods Into Soil By Synthetic Chemical

► GARDEN SOIL in minutes of work instead of seasons of weathering is promised by a new chemical. It is related to materials which are formed naturally in humus by bacterial action.

The new chemical is a synthetic that was revealed by chemists of the Monsanto Chemical Co. at a symposium on improvement of soil structure at the meeting of the American Association for the Advancement of Science in Philadelphia.

The soil improvement chemical will come on the market soon under the name of Krilium. It is undergoing extensive tests at agricultural experiment stations in many parts of the country. It will be useful especially where heavy clay soils are a problem.

Krilium will become available for home gardeners this spring in limited quantity, and in full commercial production in about a year.

Even the raw subsoil turned up by steam shovels at new housing developments can be turned into soil suitable for lawns and flower beds. This can be done the first year by working into it only a few pounds of Krilium per acre, in the experience of the Monsanto chemists.

The new soil conditioner changes the structure of clay, making it porous and crumbly. Young seedlings get a better start and established plants receive more air and nourishment in this improved soil.

Hydrolyzed polyacrylonitrile is the chemical designation of the new product. Its use was suggested to the Monsanto chemists by the fact that somewhat similar chemicals, known as polyuronides, are formed naturally by soil bacteria. The natural products, unlike Krilium, are destroyed by other bacteria. Because Krilium is not attacked by soil organisms, it gives soil scientists, for the first time, a means of distinguishing between plant growth due to good surroundings alone and that assisted by organisms living in the soil.

Science News Letter, January 5, 1952

IN SCIEN

ENGINEERING

Giant Brain Cuts Cost of Tabulating Census Returns

► AN ELECTRONIC computer, often called a giant brain, is cutting costs in tabulating results of the 1950 census, the American Institute of Electrical Engineers and the Institute of Radio Engineers meeting in Philadelphia were told by James L. MacPherson of the U. S. Bureau of the Census and Sam N. Alexander of the National Bureau of Standards.

The Bureau computer uses what is called the Univac system. The machine was constructed by the Eckert-Mauchly Computer Corporation of Philadelphia under contract with the Bureau of Standards for the Census Bureau.

"We have great confidence that high speed electronic computers hold high promise for the census," the engineers were told.

At its present level of performance the Univac produces results for about half the cost of doing the same work with other equipment, it was stated. It is believed, however, that it can, and eventually will, be improved to the extent that this ratio will be much more favorable, the scientists added.

Science News Letter, January 5, 1952

INVENTION

Improved Method For Casting Magnets

► BETTER PERMANENT magnets of the so-called Alnico type, which contain iron, aluminum, nickel and cobalt and have unusual strength, are promised with an improved casting process which has been awarded a patent.

The process results in markedly improved magnetic directional properties, it is claimed. Such properties mean that the magnetic force is greater in one direction than in a direction at right angles. They have been obtained in the past by a heat treatment in a magnetic field.

In the new method the magnets are cast in molds or cavities in which heat loss through the sides during solidification is held to a minimum. The heat is removed from one end by means of a metal chill in direct contact with the molten alloy. This causes lengthwise extending crystals to form in the solidifying metal mass.

Inventor is Dolph G. P. Ebeling, Troy, N. Y. His award is patent 2,578,407. Rights have been assigned to General Electric Company, Schenectady, N. Y.

Science News Letter, January 5, 1952

CE FIELDS

METEOROLOGY

Miamian Says Florida Like Man's Evolutionary Climate

► FLORIDA is a "new tropical frontier" for northern man. In the tropical regions of Florida, man can return to a slightly more temperate version of the regions in which he probably first existed, according to Meteorologist Robe B. Carson.

If man is at all capable of maintaining physical and mental vigor under tropical conditions, the southeast coast of Florida is the place to try, Mr. Carson says. He points out that every once in a while, the temperature in Miami gets down to freezing, bringing just a touch of the northern climate in which man achieved so much.

Man's tropical origin, Mr. Carson says, is written into his body. He is better adapted to heat than to cold. On the other hand, man has had difficulties in adapting temperate climate to his needs. He has had to build up food stocks to last the winter and heat his home to provide the climate he is suited for.

Whether he can return to a climate like that of his evolution is still an unanswered question. But, according to Mr. Carson, the Florida tropics, with adequate summer cooling power and mild winter stimulation, seems an unusually happy blending of temperate and tropical conditions, an environment in which men may realize new potentialities.

Mr. Carson is supervisor of the Miami Flight Advisory Weather Service. His statements were made in *ECONOMIC GEOGRAPHY* (Oct.).

Science News Letter, January 5, 1952

ASTRONOMY

Navigators Saved Errors By Planet Calculations

► NAVIGATORS OF the future will be saved some puzzling results and even miscalculations by publication of new positions for the five outer planets during the next century.

Just made available by the Nautical Almanac Office of the U. S. Naval Observatory, the 327-page volume lists the positions of Jupiter, Saturn, Uranus, Neptune and Pluto at 40-day intervals for 407 years. It is titled: "Coordinates of the Five Outer Planets, 1653 to 2060."

The orbits of these outer planets have needed re-calculating for some time because of great discrepancies between predicted and observed positions. In a few more years these errors would have affected even the accuracy of routine navigation in aircraft

and surface ships, sometimes throwing them off their course.

Three astronomers cooperated to complete these calculations. They were: Dr. W. J. Eckert, director of Pure Science for International Business Machines Corporation and professor of celestial mechanics at Columbia University; Dr. Dirk Brouwer, director of the Yale University Observatory; and G. M. Clemence, director of the Nautical Almanac Office at the U. S. Naval Observatory.

The actual calculations were performed on IBM's giant Selective Sequence Calculator.

Science News Letter, January 5, 1952

AGRICULTURE

Develop New Strawberries And Two Blueberries

► A NEW strawberry and two new blueberries will make their appearance next summer. In 1953 you will probably be able to purchase them in local markets if they come up to expectations.

The Albritton strawberry, an outstanding producer, and the Angola blueberry, which ripens earlier than any commercial variety now grown, were selected from crosses under study by Dr. George M. Darrow of the U. S. Department of Agriculture and Prof. E. B. Morrow of the North Carolina Experiment Station. Dr. Darrow selected the Ivanhoe blueberry, noteworthy for its large, good-flavored berries, from experimental plantings in New Jersey.

The Albritton strawberry is ideal for shipping as it has a tough skin and firm flesh. Deep red and exceptionally glossy when fully ripe, there are about 59 berries per pound. Its production averaged 360 crates per acre in 1951 trials at Willard, N. C., as compared with 280 crates an acre for Massey, well-known commercial strawberry, and only 188 crates for Missionary, another widely-produced variety.

Although tested only in eastern North Carolina, the new strawberry appears suitable for production in the East from Delaware south to northern Georgia, and in corresponding latitudes across Mississippi, Alabama, Louisiana and southern Arkansas.

Earliness and high resistance to stem canker make the Angola blueberry unusually promising for North Carolina where this disease is a serious threat to the crop. This blueberry ripens in May, before any other commercial variety is ready for market.

The second new blueberry also has high resistance to canker disease. During four years of testing the Ivanhoe blueberry averaged 86 to a cup, as compared with 142 for Stanley, a commercial variety used as a parent in developing this new berry. It is recommended as an early mid-season variety for North Carolina and for limited trials north to southern New England.

Science News Letter, January 5, 1952

ENGINEERING

Bacteria Cause Stain On Iron and Steel

► RECENT RESEARCH has shown that bacteria can cause stains on ferrous metal surfaces.

A. W. Lindert, research expert for the Standard Oil Company of Indiana, told a meeting of the Milwaukee chapter of the American Society of Lubrication Engineers that bacteria can thrive on oil as well as dirt. They are in the water which forms part of the soluble oil emulsion used to cool metal being worked in machine shops.

The emulsion is also designed to prevent rust. The oil does that. But because bacteria can live in the water and form organic acids from the hydrocarbons in the oil, the emulsion was found to be having the very effect it was designed to avoid. The acids ate into the metal, staining it so that only more machining would remove the stains.

The remedy is to change the emulsion frequently as the operation nears the end, to "tailor" the oil to the hardness of the water and to provide an extra emulsion bath for the finished part.

Science News Letter, January 5, 1952

SURGERY

Polio-Disabled Hands Can Be Remade Surgically

► HANDS disabled by poliomyelitis can be remade by surgical operations.

The surgical techniques for such remodeling were learned through rehabilitation work on the wounded in World War II, Dr. C. E. Irwin, medical director of the Georgia Warm Springs Foundation, points out in a report from the National Foundation for Infantile Paralysis.

"The careful execution of well planned operative procedures can often transform a disabled hand into one of almost normal appearance and one capable of a surprising amount of dexterity," Dr. Irwin states. "Patients may again use a typewriter, play the piano, fasten a button and do many other dexterous functions which otherwise would be impossible."

According to Dr. Irwin, the highest level of function which surgery can restore to the disabled hand depends on several factors: The severity of the paralysis left in the aftermath of the disease, the quality of physical therapy administered; the proper evaluation of the patient's problem by the surgeon, plus the skill with which the subsequent operative procedures are executed, and the patient's cooperation.

"Rapid strides are being made in surgery on the hand disabled by poliomyelitis," Dr. Irwin concludes. "Many of these patients can by surgery be restored to a rightful position in their environment and returned to the economic level enjoyed by their normal associates."

Science News Letter, January 5, 1952