



A rare substance that has caused remarkable acceleration of growth in some plants holds promise as a major growth-regulating chemical, according to scientists of the U. S. Department of Agriculture. Gibberellic acid, one form of this chemical, has doubled or tripled plant height in many cases. In this photograph, California Wonder Pepper plants on the

left received a treatment of one per cent gibberellic acid in lanolin paste, applied around the stem of each plant, about four weeks before the picture was taken. Untreated plants at right are same age as treated plants. Difference in height between the two pairs of plants is due to growth-stimulating effect of gibberellic acid. (USDA Photo).

### New Growth Regulator Triples Height of Some Ornamental Plants

WASHINGTON — (USDA) — A rare and little-known substance that has caused remarkable acceleration of growth in a number of plants offers unusual possibilities as a growth-regulating chemical, the U. S. Department of Agriculture reports.

In preliminary greenhouse experiments, gibberellic acid (one form of the chemical) has doubled or tripled the heights of various kinds of plants. Only one application of the chemical, in very minute amounts, was made in each case.

In these tests at USDA's Agricultural Research Center, Beltsville, Md., gibberellic acid was applied in a lanolin paste mixture externally to the stems of young plants. Within three to four weeks following treatment, ornamentals such as geranium, poinsettia, sunflower, rose, salvia, dwarf dahlia, petunia, and aster had grown one-half to three times taller than comparable untreated plants.

#### Crop Plants Tested

Heights of crop plants such as snapbean, soybean, peanut, pepper, eggplant, corn, and barley were in many cases doubled or tripled by similar application of the chemical. During the early stages of growth, both the weight of fresh soybean and snapbean plants and the amount of solid matter in them were increased by 30 to 40 per cent with gibberellic acid.

In limited tests with several vegetables, including tomatoes, snapbeans, and peppers, applying the chemical directly to the fruit did not affect fruit growth.

New growth of young forest trees such as willow oak, tulip poplar, and maple was greatly increased by treatment with gibberellic acid. However, similar applications to two species of pine and white spruce caused only slight increase in growth of new shoots.

Under greenhouse conditions, gibberellic acid retarded flowering of some ornamental and crop plants, while in others it advanced flowering by one to several weeks.

Only minute amounts of the chemical are needed to produce these effects. As little as one-millionth of an ounce of gibberellic acid in an ounce of water caused plants to grow taller in some of the Beltsville tests. Although all initial applications of the acid were in a lanolin paste mixture, researchers have now

switched to using a foliar spray, which is easier to apply.

Even though gibberellic acid itself is not new, having been known for some years, its present experimental use as a growth regulator on a wide variety of horticultural, agronomic, and forest-tree species is a relatively new development.

The acid was first obtained from a fungus of the genus *Gibberella* that has long been a major disease of rice in Japan, causing excessive elongation of the rice plants and reduced yield. When early work on prevention of this disease was carried on in Japan, researchers noticed the characteristic elongation of plant grown in media containing the fungus, and they later isolated from the fungus chemicals responsible for this increased growth not only of rice but of other kinds of plants. Studies on its characteristics by scientists at Beltsville were initiated as part of a continuing research program on plant-growth-regulating compounds.

#### Research Preliminary

Physiologists P. C. Marth, W. V. Audia, and J. W. Mitchell of USDA's Agricultural Research Service are conducting the work on gibberellic acid at Beltsville. Their initial success in dramatically increasing plant growth has led them to extend their research to learn whether gibberellic acid can be used in any of the following ways: To stimulate elongation of plants, giving them an advantage over competing growths; to increase the dry weight of certain crops at harvest time (especially forage crops); and to increase the growth of plants that grow slowly but are in great demand, such as pulpwood.

The USDA scientists point out, however, that research on gibberellic acid is still in a preliminary stage, and no immediate practical use for the chemical has yet been worked out.

A major difficulty is the serious shortage of gibberellic acid. Methods for production of the chemical in large amounts have not been developed, and available supplies are in urgent demand because its sudden prominence as a research material. In addition to the work at Beltsville, similar studies of gibberellic acid are currently under way by other researchers in the United States, Japan, and Great Britain.

### New Laws That Affect Farmer Now Activated

HARRISBURG— Activation of the many new laws affecting Pennsylvania farmers and the State Department of Agriculture, passed by the 1955-56 Legislature, is in full swing in the Department, Secretary William L. Henning announced today.

Topping the long list of acts bringing direct benefits to farmers is 100 per cent rebate of the State tax of six cents per gallon on gasoline used on farms in the production of food, he said. The previous refund rate was 50 per cent. The new act, now in effect, gives farmers opportunity to apply for full refund of the tax which amounts to \$60 on every 1,000 gallons of gasoline used on the farm.

New acts are designed to guarantee that farmers receive full value for the fertilizers, livestock and poultry feeds that they buy. The acts establish a self-sustaining enforcement fund through an assessment of two cents a ton on sales by manufacturers.

A start was made on modernization of the general food law when the Joint State Government Commission was directed to make a study and report at the 1957 session of the General Assembly.

The United States Department of Agriculture Crop Reporting Board's wool price report shows that for every dollar's worth of wool a farmer sold in the 1955 marketing year he will receive an additional 44.9 cents in production payments from the Government.

The season average price of 42.8 cents compares with 53.2 for the 1954 season, and 54.9 for 1953, or the present price is the lowest since 1947. The Department will pay 77 cents per 100 pounds of live weight as a subsidy on lambs, a subsidy designed to support wool pulled from carcasses.

### Vegetable Production Delayed by Freeze

HARRISBURG — Production of spring and summer vegetables on Pennsylvania commercial truck farms has been delayed two weeks or more and output is expected to be below average in some areas, according to surveys announced by the State Department of Agriculture.

The survey covered asparagus, beans, beets, lettuce, spring spinach and strawberries. Cold weather hindered development of each crop. Snap beans were especially hard hit and the season has been a poor one, the Department said. Planting started about a week late. Killing frosts on May 17 and 25 damaged the early acreage.

Volume movement of Pennsylvania strawberries started about June 10. The crop is below last year due to the May freeze damage to blossoms.

Spring spinach harvesting reached its peak in late May and continued into June. Late spring lettuce harvest was delayed about two weeks.

### State Police Teacher Completes FBI Course

HARRISBURG — Sergeant John I. Gosnick was graduated from the 12-week course of study at the F. B. I. National Academy, Washington, D. C., on June 8, it was announced today by Colonel E. J. Henry, State Police Commissioner.

Sergeant Gosnick is an instructor in criminal law and procedure, laboratory and police aids, fingerprinting, and other crime detection aids at the State Police Training School Hershey. He has been a State Policeman 19 years. Prior to enlisting in the Department in 1937, he served six years with the United States Army.

He was graduated from Hershey Junior College in 1946, Lebanon Valley College in 1953, and is presently enrolled at Temple University where he is studying for his master's degree in education. His formal education was attained during evening classes.

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