

# Short-Lived Protein May Be Key To Improving Crops

WASHINGTON — The 12-hour life cycle of a type of plant protein that channels light energy in green plants has been charted by plant scientists with the U.S. Department of agriculture and Israel's Weizmann Institute of Science.

The findings may lead to new research aimed at boosting the mere one percent of light energy

reaching the plants that goes into growth and food production, said Autar K. Mattoo of USDA's Agricultural Research Service.

"Billions of these protein molecules, called 32kDa, are born and die each day in every leaf," said Mattoo. Other leaf proteins take much longer than that to form and break down.

Mattoo and Israel's Marvin Edelman tell the life story of the 32kDa protein in today's issue of the Proceedings of the National Academy of Sciences. This knowledge should help scientists develop crops better at resisting herbicides as well as turning sunlight into food.

"This short-lived protein is essential to a plant's efficient conversion of light energy to chemical energy for its growth and nourishment," Mattoo said today at the Beltsville, Md., Agricultural Research Center.

With the story of the 32kDa protein told, "scientists can now find the chemical signals that start and stop the conversion process," he said. Then they can use genetic engineering techniques to shorten or lengthen the protein's life span, steering the signals toward producing more food in crops during photosynthesis.

Edelman has initiated research on a gene transfer system that might make such work possible in several years.

Mattoo and Edelman found that the protein works hardest at mid-day when plant leaves trap the most light—and when herbicides are most lethal.

"Certain herbicides attach to the

protein and clog up photosynthesis—thereby weakening or killing plants," Mattoo said. An understanding of the protein, he said, will now allow scientists to take steps toward engineering it in crops so that only weeds would be killed.

Mattoo hopes that results of their seven years of research "to figure out the life history of 32kDa" can help clear up some mysteries of how photosynthesis machinery is built.

Photosynthesis is made possible when the energy in a ray of light is trapped in a plant leaf, instead of being released as heat as when it strikes a rock, for instance. Chloroplasts in the leaf convert light energy to chemical energy in a way parallel to an electrical circuit. Inside each chloroplast, the highly complex "circuitry" of stroma and grana membranes act as wires, batteries and electric motors to power the plant.

## Celebrate Grange Week

HARRISBURG — You can join the thousands of Grangers who will come together across the nation to celebrate Grange Week April 19-25. In recognition of this 115-year-old organization, Governor Robert Casey has proclaimed the week of April 19-25 Pennsylvania Grange Week.

Recently, the governor signed a proclamation designating this week-long celebration. Prior to his signature, the governor said:

"The Keystone State takes pride in its rich agricultural heritage. Over the years, the Pennsylvania State Grange has been an important part of the strong tradition, working to ensure that our agricultural legacy is preserved and promoted for future generations.

"Since the Grange was found in

1873, its members have dedicated themselves to improving farming and rural life in the interest of all Pennsylvania.

"Pennsylvania recognizes the important services provided by this grassroots organization. Local Granges often serve as hubs of community activity, and they have provided convenient forums for community and regional planning in rural communities. Members have also taken active roles in government and the legislative process. Committed to the ethic of honest labor, the Pennsylvania State Grange maintains standards of productivity and patriotism to ensure that Pennsylvania agriculture keeps growing better and that rural-America remains vibrant."

The Pennsylvania State Grange

will celebrate its grassroots on Monday, April 27, 1987 at the Harrisburg Marriott. The Pennsylvania Grange Week Banquet will begin with a social hour at 5 p.m. Dinner will be at 6 p.m. All are invited to join in the celebration, the celebration of a legacy. Tickets are \$11 and can be ordered by writing the PA State Grange at 1604 N. Second Street, Harrisburg, PA 17102.

### Del. Strawberry Festival Slated

DOVER, Del. — One of Delaware's most popular spring fruits will be the subject of a gala festival in Middletown this May.

The Delaware Strawberry Festival '87 is scheduled for Saturday, May 30, 1987, at the Middletown High School on South Broad Street.

The festivities will begin at 9 a.m. with the Run for the Strawberries 5K and one mile fitness walk. At 10 a.m., there will be live music, a strawberry growers contest and auction, games, exhibits, and of course, plenty of fresh Delaware strawberries.

Runners and walkers can call

736-4787 for information. Farmers and gardeners who would like to enter the growers contest should call 451-8934. Persons wanting to exhibit arts, crafts, etc., should call Anita Muir, at 995-8684.

The Delaware Strawberry Festival '87 is being sponsored by: Southern States Cooperative, Delaware Direct Marketing Association, Division of Public Health, Delaware Department of Agriculture, Delaware Cooperative Extension, Middletown/Odessa/Townsend Lions Club, Delaware 4-H, Middletown High School, Middletown Chamber of Commerce, and Middletown Volunteer Fire Department Ladies Auxiliary.

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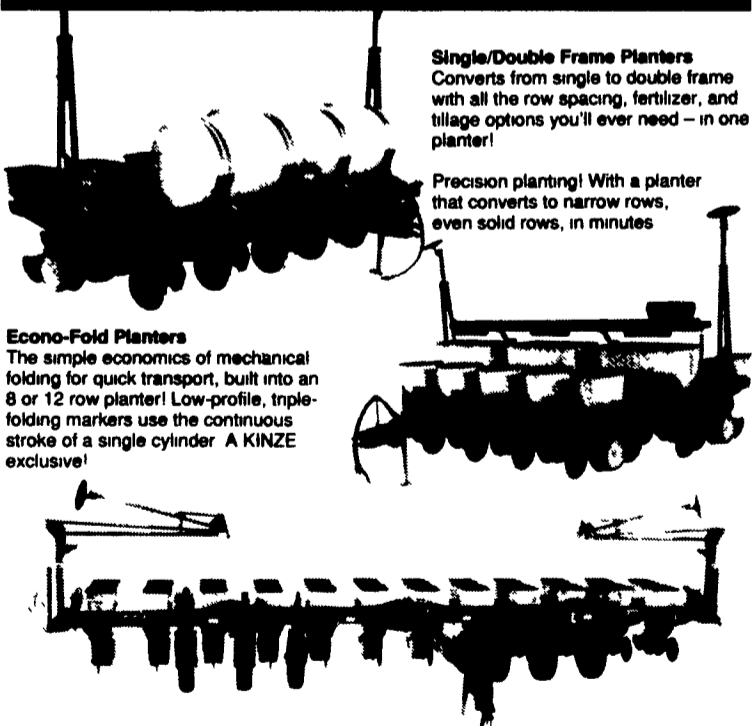


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