

## Ag Science Prominent

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worked only to 3 weeks, when mold started to form.

Sarah indicated that textbooks would show that the pH of the albumin would rise to 8 when molding. She found out the pH actually dropped to 6.4.

Sarah is considering choosing a degree in food science and studying the biological sciences in a four-year college. She is enrolled in honors biology at Hempfield. Her adviser at Hempfield is Robert H. Hertzler.

A future project for her school will involve looking at the variables involved in preserving eggs without refrigeration.

### Charity Irvine

Charity Irvine, 17, daughter of Keith and Rebecca Irvine, Ephrata, is a senior at Ephrata High School.

Charity won third place in the biology division of the fair with her project, "Molting Away the Bacteria."

Charity was inspired by an article her adviser, Patricia Wee, handed her regarding research into how bacteria could promote degradation of keratin in bird feathers from Wesleyan University. The article in the university's magazine reviewed some of the research about how the bacteria was degrading the feathers and looked at the environmental conditions present to cause the degradation.

After Charity contacted the university, they sent her jars containing feathers from White Leghorn chickens. Charity looked at the effects of high humidity, moisture, and other conditions compared to control studies using two strains of the same bacteria, called *Bacillus licheniformis*: Strains 138B and 188B.

What she found was that the 188B strain worked better when the jar was shaken and contained 100 percent humidity. She found the 138B strain to create high test weight differences because of a combination of the bacteria with the medium used, bonding with feathers to cause feather weight gain.

Charity and the university are looking into some of the reasons why birds "molt" or lose their feathers. Could it be the bacteria alone? Could it be the interaction of the bacteria and hormones? Researchers still don't know.

One of the practical uses of this research would be to make the feathers useful as livestock feed. The research could help find a way to allow the bacteria to break down the keratin, which impedes digestion of the feathers for feed. Charity said there are 225,000 pounds of waste feathers generated in the industry every year, which could translate someday into a lot of feed.

Charity plans to attend either Harvard or Cornell to study the social sciences with plans for graduate school. She enjoys two of her advanced placement courses: European History and Composition Language, in addition to Chemistry II and physics.

This year she enjoys advanced placement literature and psychology.

### Janelle Hoover

Janelle Hoover, 15, is the daughter of Marty and Lois Hoover, Schoeneck. She is a sophomore at Ephrata High School and won an honorable mention with her project, "The Effects of Feed Protein Content On Growth Rate and Litter Size of Mice."

Janelle is enrolled in Ag Science II at Ephrata. Janelle, who lives on a 2½ acre farmette, said the idea of looking into the effects of protein feed on mice came about because she already was raising 2,000 mice upstairs in the barn and looking at the effects of feed on their growth.

The enterprise came about as a result of a church project which challenged the family to take \$5 and multiply it. They purchased the mice from a pet store. The mice were placed in plastic storage containers with wire covers and a place for feed and water bottles.

At her farm, a total of 180 containers hold the mice. She brought 96 mice to school to further study the effects of feed.

Janelle looked into three methods to cut feed costs. One feed plan used a control feed (pellets with 16 percent protein), one plain corn, and the other plain soybeans.

Her results — with corn, there was little gain but the mice looked good. With soybeans, the rate of gain was improved but the mice lacked energy. With the control feed, the mice tripled in weight.

Janelle split the entire mouse population into two separate groups, control and test. The groups were separated into two divisions: breeders and growers. She looked at the reproduction rate of the growers on the different feed and looked at the gain of the growers.

Of the growers, there were three groups: of each group, two were fed the control, two were fed the corn, and two were fed soybeans. The same happened with the breeders.

The results? With all the groups, the mice on corn "looked nicer" Janelle said, but the rate of gain

and other factors improved with the ice on soybeans.

Janelle, who enjoys World Cultures, Biology, and English at Ephrata, plans to study large animal veterinary medicine at Penn State. She is enrolled in advanced placement biology at Ephrata.

Project adviser at Ephrata is ag science instructor Jodi L. Brown.

### Joanne Zimmerman

Joanne Zimmerman, who is enrolled in Ag Science III and Plant Science I at Ephrata, won first place for her unique physics project, "The Effects of the Invisible on the Visible."

Joanne, 17, is the daughter of David and Joyce Zimmerman, Reinholds.

The Ephrata High School junior's project involved studying air resistance (the invisible factor) on a bullet (the visible) and how

different bullet shapes effect speed and targeting.

Joanne got the idea from a suggestion from one of her family members. She studied two different bullets: round-nose and spitzer-(pointed) nose, both hollow points. The bullets were 7 mm caliber fired from an XP-100 Remington pistol.

She spent a lot of time researching the project and read about 18 books on ballistics, trajectories, air resistance, and other factors. She used equipment to determine the exact velocity of the bullets.

What Joanne found was that the aerodynamics determined how much air resistance was a factor in slowing the bullet down. The spitzer bullet was more accurate because it was delivered to the target quicker — the round-nose slowed down and was less accu-

rate. The more air resistance there is, the more time the bullet has to fall down and away from the target.

The research methodology Joanne used, she believes, can be "applied to any area of science." Joanne used Publisher software on her home computer to put together a brochure on her project. She made use of a digital camera and scanner at the school, along with other software, to compile the extensive graphics and charts for her project.

Her project adviser at Ephrata is Larry E. Hess.

Joanne has looked into a couple of two-year and four-year colleges and may pursue a career in graphics. She is enrolled in Ag Science III and Plant Science I. Her favorite course is Communications II.

## Produce Auction Season Begins

EPHRATA (Lancaster Co.) — More than daffodils are blooming now that spring's officially arrived.

Spring has signalled the start not only of backyard flowers, but also produce auctions.

As a result, *Lancaster Farming* has contacted the regional produce auction managers and compiled this list of starting dates and times for many auctions.

Some auctions already kicked off the local produce season but most feature only bedding plant and related materials.

Cumberland Valley began March 13 and Kutztown and Shippensburg began March 18. Snyder's began March 21.

Following is a list of auction starting dates and times and materials going on the block: # Buffalo Valley Produce Auction, Mifflinburg. Season begins April 29 and is held every Tuesday and Thursday.

• Cumberland Valley Produce, Shippensburg. Season opened March 13 and runs every Tuesday and Thursday at 9:30 a.m. The auction is selling bedding plants and

some fruits and vegetables.

• Kutztown Produce Auction, Fleetwood. Began Tuesday, March 18 and operates every Tuesday and Thursday at 11 a.m. for produce, nursery stock, and flowers.

• Lebanon Produce Auction, Reistville. Auction begins Friday, May 2, to start, featuring bedding plants and flowers.

• Leinbach's Shippensburg Produce Auction, Shippensburg. Auction began March 18 from 11 a.m. with flowers. In April, auction is

every Tuesday and Thursday at 11 a.m.

• Leola Produce Auction, Leola. First sale is Tuesday, April 1, 10 a.m.

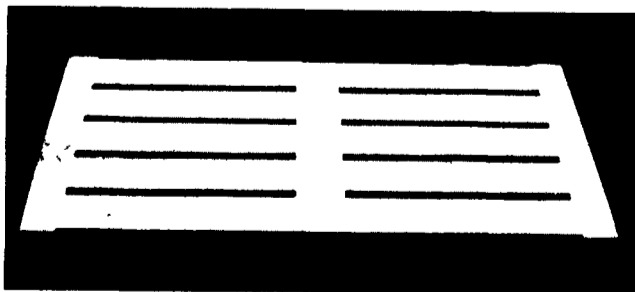
• Snyder County Produce Auction, Port Trevorton. Began Friday, March 21, at noon with Easter flowers. Beginning April 18, bedding plants and shrubbery will be sold at noon.

• The Windmill Produce Auction, Penn Yan, N.Y. Auction begins Friday, May 2, from 10 a.m. until mid-June with strawberries.



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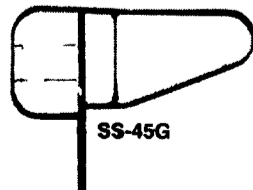
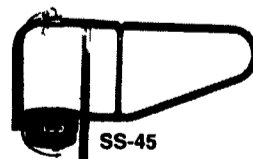
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