

Penn State Cooperative Extension Capitol Region Dairy Team

SPRAYER CALIBRATION
Del Voight
Capitol Region
Extension Agronomy
Agent, Lebanon

Being with cooperative extension for 10 years, I have had the pleasure of calibrating numerous sprayers. I have calibrated anything from mules pulling a sprayer to small backpack sprayers.

The most common problem I encountered with sprayers is improper nozzles, or nozzles not matching the sprayer. Some extension agents in Oregon found 86 percent of the sprayers calibrated by agents to be in need of adjustment, mostly because of failed spray nozzles. In many cases where pesticides fail, the sprayer is the main issue.

One farm had repeat failures of a product, and a simple boom height adjustment resulted in no more problems.

Here are some brief pointers in the proper calibration of sprayers. A fact sheet on "Calibration of Sprayers" is available at your local extension office. If you need specific assistance, do not hesitate to call me or a local agent or crop consultant for help.

Precalibration

- 1. Pesticides are dangerous. Wear rubber gloves and coveralls to complete this operation.
- 2. Take all nozzles and screen devices off sprayer (this includes the agitation nozzles inside the tank) and clean in soapy solution.
- 3. With nozzles off, run water through the whole system.
- 4. Check all parts for cracks. Pay attention to hoses and replace damaged hoses as needed.
- 5. Consider low drift nozzle replacement. Standard flats will lose 25 percent of spray to driftable fines while new air induction nozzles will lose only 1 percent to driftable fines.
- 6. Be sure that screens, washers, and tips are replaced in each of the nozzle bodies. A missed screen can result in a 25 percent overspray for that nozzle.

Calibration

(This is the simple form and is highly accurate):

- 1. Measure spacing of nozzles and refer to your chart for the course length.
- 2. Measure off the course length on a typical soil surface you plan to operate the sprayer. Use bright colored markers to mark the ends.
- 3. Fill the sprayer halfway with water and hook to the tractor or mules you plan to use to spray with.

- 4. Travel at a speed you are comfortable spraying at and operate the tractor and sprayer together without the pump running between the course flags.
- 5. Use a timepiece to determine how long it takes to run the course. Do this three times to gain an average speed in seconds.
- 6. With the sprayer on a level surface, turn pump on and begin spraying in place. Adjust pressure regulator to desired output. Start at 40 psi.
- 7. Collect with a device that reads ounces for the same time it took to run the course.
- 8. Ounces equals gallons per

Monitoring

- 1. For new sprayers and at least once per year, all nozzles should be checked for even output. Either catch water for a set amount of time or use a flow meter to determine the output of each nozzle. On rate-controlled devices, this is the most crucial part of the calibration.
- 2. If a single nozzle is out of flow with the others by 10 percent, replace the nozzle. This can occur with brand-new nozzles, so it will need to be done whether old or new.
- 3. If error in rate is less than 10 percent, change pressure. If error in rate is greater than 10 percent but less than 25 percent, change ground speed. If error in rate is greater than 25 percent, change nozzle size.
- 4. Pressure must be increased 4 times to double sprayer output.
- 5. Twice the speed equals one-half the output.
- 6. If you plan to use other than water for a carrier, you will need to adjust the volume of water up to compensate for the differences in the density of the carrier. For instance, liquid nitrogen weighs 11 pounds versus water at 8 pounds so if the desired output is 20 gallons per acre of UAN then the calibration with water would be about 22 gallons of water. Spray rate controls will require you to enter the correct conversion factors which are contained in many sources of spray nozzles and user guides.

On a typical 100-acre farm, proper calibration can save \$500 to \$1,000 annually by preventing overapplication, which reduces the amount of pesticide in the environment and ensures proper application rates for efficient performance from a given product.

Spring Holstein Show Set

HARRISBURG (Dauphin Co.) — The Pennsylvania Holstein Association's 50th Annual Spring Show will take place at the Farm Show Building, Harrisburg, on Friday, March 28.

More than 200 head have been entered in the Spring Show. Alta Mae Core from Salvisa, Ky., will be the judge for this year's event.

The show will begin at 9:30 a.m. in the Farm Show Building Large Arena.

This is an excellent opportunity to see some of the best cattle in the country owned by Pennsylvania Holstein members. Holstein enthusiasts are welcome to share in the fun and excitement of the Spring Show in Harrisburg on March 28.

Pa. Ayrshire Breeders To Meet

BEDFORD (Bedford Co.) — The Pennsylvania Ayrshire Breeders Association's annual spring convention is set to take place at the Best Western in Bedford April 25 and 26.

The convention will include a banquet at 6 p.m. Friday evening, April 25. The meal will be preceded at 5:30 by introduction of the Pennsylvania Ayrshire Princess contestants. Activities following the banquet include crowning of the new princess, Hall of Fame award presentation, youth awards, and the Anything Goes Auction.

Saturday events include the spring meeting, from 9-11 a.m. and the Ayrshire calf and heifer sale at 1:30 p.m.

The sale committee is looking for quality calf and heifer consignments for the sale. Contact Shawn Hernley at (717) 865-6782 or Dale Maulfair at (717) 865-6439 if you have an animal you wish to consign.

Youth may enter the following contests:

- Ayrshire Princess Contest, ages 16-21;
 - Ayrshire Maid, ages 8 to 15;
- Milk Production Awards, for Ayrshire cow who completed 305-day lactation in 2002;
- Scrapbook Contest, in four age categories; and
- Pennsylvania Outstanding Youth Award.

Youth may contact Barb Rader at (724) 789-7413 for details and forms.

Cost for the Friday evening

Emmaus Farmers' Market Meeting Set

EMMAUS (Lehigh Co.) — The Friends of the Emmaus Farmers' Market (FEFM), a group of local residents and businesses, is hosting its first farmers' meeting to provide information and answer questions about the new downtown Emmaus Farmers' Market.

The FEFM is seeking a diverse mix of local farm products, from fresh peaches and heirloom vegetables to perennials, pastured poultry, pickled beets, baked goods, goat cheese, and honey.

All farmers and producers are welcome to attend this kick-off meeting on Monday, March 31 at 7 p.m. at the Emmaus Borough Hall, 28 S. 4th St., Emmaus.

The Emmaus Farmers' Market will be operating during the 2003 season as an open-air, producer-based market in the parking lot of Keystone Savings Bank, 235 Main Street, Emmaus.

This location is in the heart of an active residential and commercial shopping district with excellent frontage on a major roadway and adequate customer parking.

Representatives from the Friends of the Emmaus Farmers' Market, the Emmaus Main Street Program, the Borough of Emmaus, and the Lehigh County Cooperative Extension will address topics such as: season start and end dates, market day and time, promotions, and insurance.

SEPTEMBER 14

Keith Hausman from the Coopersburg farmers' market and Brian Moyer from the Teleford farmers' market will be on hand to share their experiences.

To rsvp or for further information, please call (610) 965-6279 or (610) 391-9840.

Spring Convention 2003 Meal Reservation Due by March 28, 2003	
Name	
Address	
Phone	
Number attending the Meal on Friday, April 25, 2	003 @ 6 00 pm
Adults age 12 and up @ \$11 00	=
Children age 5 - 12 @ \$5 50	=
Children age 4 and under @ \$3 00	<u> </u>
Total amount enclosed	= \$
Please enclose a check made payable to PA Ayrshi	re Breeders Association.
Meal reservations are non refundable.	
Mail to: Amy Templin 93 Orchard Road Hamburg, PA 19526	

banquet is \$11 for ages 12 and above, \$5.50 for ages 5-12, and \$3 for children 4 and under.

Room reservations are due by March 28. Call the Best Western at (814) 623-9600 to reserve a room.

Banquet reservations are also due by March 28. Clip and send form to Amy Templin. Call her at (610) 323-9595 with questions.

The Best Western is located at Exit 146A off the Pennsylvania Turnpike.

2003 PENNSYLVANIA HOLSTEIN ASSOCIATION CALENDAR OF EVENTS MARCH 27 11 00A M HEM VIEW 100 SALF HEM VIEW HOLSTEIN FARM WARREN PA 9 30A M PA HOLSTEIN SPRING SHOW MARCH 28 FARM SHOW BUILDING HARRISBURG PA 11 00A M. DVC GREEN & GOLD SPRING SPECTACULAR SALL MARCH 29 DELAWARE VALLEY COLLEGE DOYLESTOWN PA 7 OOPM M WESTERN PA SPRING SPECIACULAR SALE APRIL 11 MERCER COUNTY 4-II PARK MERCER PA 7 00P M SOUTHWEST SENSATION SALE APRIL 16 FAYETTE COUNTY FAIRGROUNDS UNIONTOWN PA 11 00A M PA HOLSTEIN HEIFER SALE APRIL 25 PA HOLSTEIN FARM MIDDLETOWN PA PA HOLSTEIN ASSOCIATION SUMMER PICNIC AND ACTIVITIES JULY 13 10 00A M SOUTHWEST CHAMPIONSHIP SHOW JULY 26 FAIRGROUNDS UNIONTOWN PA 9 30A M NORTHWEST CHAMPIONSHIP SHOW AUGUST 1 FAIRGROUNDS NEW CASTLL PA AUGUST 9 9 30A M SOUTH CENTRAL CHAMPIONSHIP SHOW FAIRGROUNDS SHIPPENSBURG PA 11 00A M WARREN COUNTY HOLSTFIN SALE AUGUST 16 FAIRGROUNDS PITTSFIELD PA 6 00P M CENTRAL CHAMPIONSHIP SHOW AUGUST 16 FAIRGROUNDS HUNTINGDON PA 9 30A M. SOUTHEAST CHAMPIONSHIP SHOW FAIRGROUNDS LEBANON PA AUGUST 29 11 004 M. PA HOLSTEIN HEIFER SALE PA HOLSTEIN FARM MIDDLETOWN PA SEPTEMBER 33 9 00A M. PA FALL CHAMPIONSHIP SHOW EARM SHOW BUILDING HARRISBURG PA SEPTEMBER 24/25 **FASTERN NATIONAL HOLSTEIN SHOW** FARM SHOW BUILDING HARRISBURG PA

Lancaster Farming Check out our Website!

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