

# Stephanie Wagner Shows Third Lebanon Supreme Dairy Animal

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INTERMEDIATE CALF: 1.Darin Nolt; 2.Dustin Homing; 3.Jesse Bomgardner  
 FFA: 1.Jesse Bomgardner 2.Brent Shuey 3.Jennifer Bashore  
 SR. HEIFER CALF 1.Peter Sonnen, 2.Dustin Homing; 3.Greg Brunner  
 FFA: 1.Troy Shuey; 2.Michelle Mase; 3.Andy Martin  
 SUMMER YEARLING HEIFER; 1.Timothy Getz; 2.Rachael Krall; 3.Jeremy Troutman  
 FFA: 1.Kathy Mase; 2.Peter Sonnen;  
 JR YEARLING ; 1.Kevin Bomgardner; 2.Danette Nolt; 3.Michelle Reist  
 FFA: 1.Jennifer Bashore; 2.Brent Shuey; 3.Jeffrey Hostetter  
 INTERMEDIATE YEARLING HEIFER: 1.Bryan Hostetter; 2.Jeremy Troutman; 3.Rachel Krall  
 SR. YEARLING HEIFER: 1.Christopher Wagner; 2.Gregory Hostetter; 3.Andrea Bashore  
 FFA: 1.Scott Nolt, 2.Jesse Bomgardner; 3.Darin Nolt  
 DRY COW 1.Todd Getz, 2.Stephanie Wagner; 3.Kathy Habecker  
 FFA: 1.Jeffrey Hostetter  
 JR 2-YR-OLD: 1.Jay Bomgardner; 2.Hannah Bomgardner; 3.Brent Shuey

FFA: 1.Jay Bomgardner; 2.none  
 SR. 2-YR-OLD: 1.Curtis Bomgardner; 2.Darin Nolt; 3.Melonica Kaufman  
 FFA: 1.Troy Getz; 2.Becky Pyles  
 3-YEAR-OLD: 1.Stephanie Wagner; 2.Melissa Bickler; 3.Timothy Vail  
 FFA: 1.Kathy Mase  
 4-YEAR-OLD: 1.Jesse Bomgardner; 2.Stephanie Wagner; 3.Ryan Miller  
 FFA: 1.Kevin Bomgardner  
 AGED COW: 1.Stephanie Wagner; 2.Kurt Hostetter; 3.Melissa Bickler  
 FFA: 1.Thomas Shuey; 2.Kristen  
 JR CHAMPION: Jesse Bomgardner  
 RESERVE JR. CHAMPION: Jesse Bomgardner  
 4-H: JUNIOR CHAMPION: Bryan Hostetter  
 RESERVE JUNIOR CHAMPION: Peter Sonnen  
 SENIOR AND GRAND CHAMPION FFA  
 Kevin Bomgardner  
 RESERVE SR AND GRAND CHAMPION:  
 Kathy Mase  
 GRAND CHAMPION 4-H: Stephanie Wagner  
 RESERVE GRAND CHAMPION: Jay Bomgardner  
 DAM, DAUGHTER 4-H: 1.Stephanie Wagner;  
 2.Jesse Bomgardner  
 DAM, DAUGHTER FFA: 1.Jesse Bomgardner;  
 2.Kristen Hoffer



From the left, Brent Shuey, Jess Bomgardner, Kathy Mase, and Kevin Bomgardner show their FFA Holstein champions.

## What Is An Adequate TMR Mix?

**DENNIS R. BUCKMASTER**  
 PSU Assistant Professor  
 STATE COLLEGE (Centre Co.) — The importance of feeding dairy cows with totally mixed rations (TMR) is clear from industry trends.

All current indications are that TMR is the feeding system of choice for the 1990s and beyond. It is now the most rapidly growing feeding style in the developed countries.

By definition, TMR implies that all required nutrients are in one mix which is fed ad libitum. Because there are no other supplemental feeds, it is imperative that all nutrients (energy, fiber, protein, macrominerals, trace minerals and vitamins) be thoroughly blended in the mix so as to reduce the possibility of animals missing their allotment.

With TMRs generated on the farm, feed quality and mixing become the farmers' responsibility.

One reason for failure of TMR feeding systems is poor management of mixing. Good information regarding mix management will be even more important in the future as more commodity and by product feeds are used and the production potential of animals continues to rise.

There has been much research related to the nutritional advantages of TMR feeding. However, there is very little known from an engineering perspective on how to get the job done most efficiently.

It is also very ironic that the industry has latched on to the acronym TMR without defining the first two letters. "Totally mixed" has not been defined well to date in quantitative terms.

In 1992, a mixer experiment was performed at the Penn State Dairy Research Center with the goal of obtaining data regarding mix uniformity so that methods of evaluation could be determined. Three variables (mix type, order of adding ingredients, mixture) which potentially have great impact on mix uniformity were studied.

The experiment was designed around the objectives of determining if there were significant differences between mix uniformity for two types of mixers, two orders of

adding ingredients, and two durations of mixing.

Samples collected were analyzed for particle size distribution, density, and concentrations of dry matter, crude protein, acid detergent fiber, neutral detergent fiber, and ash.

With primary interest in mix uniformity, the variations in mix attributes were of more interest than the mean characteristics.

Characterizing "good enough" involves the use of confidence intervals on ration attributes. A solid definition of "good enough" is currently unknown from a nutritional point of view, but that may be partly due to the lack of any method to express it to date.

For the batches blended as part of our research, all nutrient measures were within 6-percent of the average value.

Confidence intervals showed that the variations in ration attributes after mixing were certainly within lab analysis errors of the attributes involved.

For the conditions in our experiment, every batch seemed to be well mixed. This being the case, mixing time could possibly be reduced from eight minutes to two minutes without an adverse affect on mix uniformity.

If our work was representative of what is done on the farm — and we think it was — mixing time could be shortened to reduce labor requirements, reduce energy consumption and yield potentially longer service life of the machinery.

There was a tendency to do a less thorough job of mixing the longer particles than the smaller particles. This was true regardless of the mixer, fill order or mixing time. It was clear that mixing altered the particle size distribution with particle size reduced during mixing.

Based on this limited research, we plan to draft an American Society of Agricultural Engineering (ASAE) Standard related to expression of mix uniformity. We hope this will lead to further refinements in dairy feeding systems and improved operator awareness as to the critical factors related to feeding TMRs to the high producing dairy cows.



Andrew and Edward Dice show their grand champion Jersey cows.



From the left, Jamie Irwin stands with Peter Sonnen and Brent Shuey who show their junior champion Holsteins, and Amy Burkhart, dairy maid.



From the left, Jennifer Maulfair and the alternate state Jersey queen stand with Neil Kittel, who helps Dale Maulfair, right, show his champion Ayrshires.

