



Livestock Research Protocols

Effects of Apple Cider Vinegar in Dairy Cattle

Objective:

The objective of this project is to measure the effects of apple cider vinegar (ACV) on milk quality, and over-all health of dairy cattle. We aim to see if acetic acid aids in fiber digestion; increasing milk components and cow health.

Year 1

	June-August	September-November	December-February	March-May
Farm 1 – Dietzel	Feed ACV	No ACV	Feed ACV	No ACV
Farm 2 – Wedemeier	No ACV	Feed ACV	No ACV	Feed ACV
Farm 3 – Blake	Feed ACV	No ACV	Feed ACV	No ACV
Farm 4 – Gilbert	Feed ACV entire study			

Year 2

	June-August	September-November	December-February	March-May
Farm 1 – Dietzel	No ACV	Feed ACV	No ACV	Feed ACV
Farm 2 – Wedemeier	Feed ACV	No ACV	Feed ACV	No ACV
Farm 3 – Blake	No ACV	Feed ACV	No ACV	Feed ACV
Farm 4 – Gilbert	Feed ACV entire study			

Farmer-cooperators will:

- Administer raw, organic ACV to the entire herd at the rate of 4 oz/head/day. The ACV will be either be administered through a medicator in a waterer or mixed in with feed, according to farmer preference.
- Supplement ACV in three month increments, and then stop supplementing for three months, and so on, for two years. To help account for weather and forage variability in each year, farms will switch supplementation schedules from year 1 to year 2. The off periods will serve as control. One farm will feed ACV throughout the entire study.
- Collect milk volume, milk urea nitrogen (MUN) levels, somatic cell counts (SCC), and milk component data from Dairy Herd Improvement (or equivalent) records on a continual basis.
- Record number of bull calves and heifer calves born in order to determine ratio of male to female.
- Collect fresh manure from 10% of the herd and closely inspect it using a digestion analyzer. Farmers will use a manure score sheet to record changes in manure.
- Collect economic data that includes the cost of ACV and the costs of administering it.
- Eric Bryden will travel to each farm once every three months to take body condition score (BCS) on at least 20% of the herd, chosen at random. Record days in milk for each cow that has BCS taken.
- Collect historical milk quality and quantity records to include in analysis.

Practical Farmers of Iowa will:

- Provide digestion analyzers and apple cider vinegar to each farm
- Monitor progress of project and provide support when needed.
- Analyze the data to include in a research report.
- Publish results in a PFI research report, on PFI website and potentially other outlets.
- Pay the Farmer Cooperator a fee of \$550 at the conclusion of each project year, in 2018 and 2019.

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The terms of this Research Protocols document are subject to the terms of the individual Research Cooperator's Memorandum of Understanding agreement with PFI. To the extent these terms may differ or conflict, the Memorandum of Understanding shall control.