

# Manure Management: An Essential Component of 4-H Livestock Projects

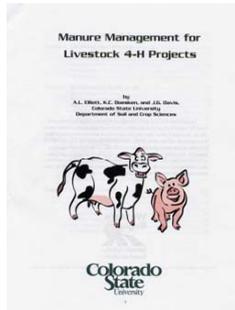
*Jessica Davis (Colorado – Professional Development Program Grant)*

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**Title:** Manure Management: An Essential Component of 4-H Livestock Projects

**Project Coordinator**

Jessica Davis, Professor  
Colorado State University  
Dept. of Soil & Crop Science  
Fort Collins, CO 80523-1170  
(970) 491-1913  
[Jessica.Davis@Colostate.edu](mailto:Jessica.Davis@Colostate.edu)



The manure management handbook is accessible on the web and can be printed as a hard copy.

**Participants:**

Kathy Doesken  
CSU Research Associate  
Adriane Elliott  
CSU Research Associate  
James Pritchett  
CSU Assistant Professor

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**Situation:**

EPA regulations infer that nearly every 4-H livestock project could be classified as an Animal Feeding Operation, or AFO. EPA is unlikely to inspect 4-H livestock projects, but such projects present an opportunity to educate future livestock producers in the essentials of managing manure.

Manure management is an integral part of livestock and horse operations. Regulations ensure that water, air and soil are not degraded from large animal numbers in dairies, feedlots and horse boarding and training facilities.

In the Western states, at least 155,000 youth are involved in 4-H livestock projects, nearly 14,000 in Colorado alone. Yet 4-H livestock curricula do not include manure management.

To help 4-H members stay abreast of the current state of animal production, 4-H curricula could use a manure management component. Teaching best management practices for manure early will help 4-H youth better understand the environmental principles behind the regulations as well as how to apply them should they eventually manage their own operations.



Composting, which requires assuring the compost reaches the right temperature, is one of several options for manure management.



**Objectives:**

1. Develop a Manure Management Curriculum for 4-H livestock participants
2. Develop a "Helper's Guide" that will provide additional learn-by-doing activities
3. Pilot test the curriculum and make revisions to improve it
4. Print 3,000 copies of the curriculum for distribution among Western states
5. Train 4-H agents in the use of the curriculum
6. Train volunteer leaders in the use of the curriculum



Horse projects also require care with manure management.

**Actions:**

The 4-H program has a set structure composed of:

- Cooperative Extension 4-H agents/educators
- Volunteer leaders
- The youth themselves

The project team harnessed this existing structure to train extension agents and volunteers, who, in turn, could teach youth about manure management.

In every 4-H lesson, there are three components: do, reflect, apply.

The same approach was used in developing the manure management curriculum, which underwent three reviews:

- A draft of "4-H Manure Management Workbook" was presented at a meeting Feb. 15, 2007, in Greeley to 20 4-H agents on the Colorado Front Range (the highly populated east side of the Rockies). The group expressed great interest in the curriculum and recommended that it be web-based rather than printed.
- The draft curriculum was presented June 21, 2007, to 15 students attending the State 4-H Conference in Ft. Collins. Hands-on activities and information interaction were used to assess student interest and understanding. Additional hands-on activities were then added to improve experiential learning.
- Two experienced 4-H agents, Kipp Nye and Tom McBride, provided a thorough review of the draft, helping to assure information was presented to students at the right level.

The revisions were completed and the final curriculum was made available at [www.manuremanagement.info](http://www.manuremanagement.info).

"Manure Management for Livestock 4-H Projects," by A.L. Elliott, K.C. Doesken and J.G. Davis of the Colorado State University Department of Soil and Crop Sciences, follows this outline:

- **Chapter 1:** Livestock and the Community
- **Chapter 2:** Healthy Animals, Health People
- **Chapter 3:** Where Does Our Water Come From?
- **Chapter 4:** Protecting Air Quality
- **Chapter 5:** The Art and Science of Composting
- **Chapter 6:** What Is Economics?
- **Chapter 7:** Putting Your Manure to Work

**Results:**

In addition to developing a 4-H curriculum on manure management, the project team:

- Cultivated a new partnership with Colorado 4-H agents
- Posted the curriculum to [www.manuremanagement.info](http://www.manuremanagement.info)
- Mailed notification postcards to CSU county extension offices
- Announced the curriculum to a national audience through an article in the eNewsletter of the National Livestock and Poultry Environmental Learning Center (a list of more than 1,000 livestock professionals)
- Sent 10 CDs of the curriculum to each state 4-H office in the West
- Developed a poster for display at the 2008 meeting in Laramie of the Western Section, American Society of Animal Science



**Potential Benefits:**

Short Term

The project enhanced awareness among Western extension 4-H agents of environmental issues related to livestock production and increased knowledge of manure management practices. As agents improve skills, they are spreading their knowledge to 4-H leaders and members.

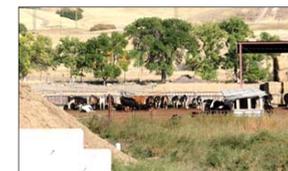
Medium Term

Through the curriculum, the project is improving the skills of 4-H agents and leaders, in particular, to increase their ability to provide educational programs in manure management.

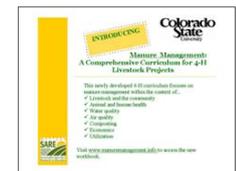
Long Term

It is anticipated that 4-H agents and leaders will use the curriculum to encourage youth participating in 4-H livestock programs to make choices that protect the environment from the excrement of their animals.

*"When the principles of good nutrient management are introduced early in youths' lives, they are more likely to practice these principles in their adult lives."*



The EPA regulations that govern large animal operations could also apply to 4-H projects.



A postcard announcing the project was sent to extension offices across the West.