Plan for Farm Operations at New MTSU Farm

1. Stark Dairy
   Jason Tanner, Dairy Herdsman; Ralph Smith, Assistant Herdsman

   (Current herd inventory is 112 total animals worth $117,800, and are maintained at two locations. The milking herd, dry herd and young stock are located at the Manson Pike Farm and the bred heifers are located at the Guy James Farm.)

   Our goal is to move the existing dairy. The Director of ABAS and the Director of the Farm Laboratories have been authorized to plan for building a dairy on the new farm. It is to be comparable to the old dairy in size and capacity of the buildings as well as the number of cattle it is capable of maintaining (55 to 80 milking cows). We will also need to build a combination shop / machinery storage barn. The dairy along with the other production units will continue to generate income to offset the cost of operation. However, record low prices and high input costs have made it extremely difficult to operate the dairy on a profitable basis in 2008 and 2009. In 2008, the herd fell short of projected revenues by $11,102, but in 2009, we exceeded revenue projections by $3,346. In 2008-09 the Stark Dairy produced 943,357 lbs. of raw milk which was marketed through Maryland/Virginia Milk Cooperative. The outlook for the coming year is not expected to improve significantly but the long overview is that the dairy industry will bounce back and see milk prices rebound to a profitable level. The dairy is essential to supply a fresh, high quality source of milk for our processing plant, and the dairy continues to be the mainstay farm laboratory experience for our students.

   Specific plans for improving the financial stability of the dairy operation include:
   • Shift to a higher percentage of Jerseys in the herd which are more efficient and produce higher component milk yielding a premium price for our milk.
   • Continue to improve genetics in order to sell genetically superior seed stock.
   • Utilize farm grown forages to decrease feed purchases for the milking herd.
   • Be at optimal production efficiency when milk market rebounds in order to take advantage of improved prices. (If long-term market estimates are correct, prices could approach $20 per hundredweight as we leave the current depressed period. If that is so, we could return to the financial stability we experienced in 2004 and 2005).

2. Milk Processing Plant
   Liz Troup, Milk Processor

   The Dairy Processing Unit serves currently as the Laboratory for a number of courses as well as the source of milk for MTSU students served through the Aramark food service on campus, (which also is an important source of income to our laboratory operation). In
2008-09 the Milk Processing Plant processed 80,744 lbs. of milk sold to ARA and the MTSU Day Care. Planned curriculum changes will expand the role of the Dairy Processing Unit in student experiential learning. We are progressing toward a Food Technology concentration as a part of the Agribusiness major. Farm Laboratory personnel continue to investigate ways to increase the utilization of the processing lab facility to generate income to off-set expenses.

Specific plans for improving the financial stability of the dairy processing operation include:

- Curriculum changes will be coupled with recruiting to increase students in the Food Technology concentration (This will not be a cost item, so any enrollment increase is revenue-positive.)
- The bottling operation will be developed to allow selling bottled milk to students and (possibly most exciting) bottled water.
- Continue using this facility to train government and private industry workers, both as a public service but also as a service-for-fee operation when it is appropriate.
- Develop milk based drinks to bottle for sell to students on campus.
- We plan to develop in the future a milk based coffee flavored drink. Marketing research has shown that college students show a preference for this particular flavor.

3. Beef Unit
   Daniel Boyer, Beef /Swine Herdsman

   (Current inventory is 216 animals, valued at $164,000 which are maintained at three locations, the VA Beef Unit, the Swine Unit and the Guy James Farm)

   The registered Angus herd has been moved to the new farm. The Charolais herd and the Crossbred herd will be maintained on the current Beef Units (off of Compton Rd. and the Swine Unit on Lebanon Rd.). We are reevaluating the beef program with the possibility of reducing our cow numbers and moving toward a heifer or steer development program. This change will need to be thoroughly studied to be sure that we maintain the usefulness of these animals for use by our student and be certain that we maintain or increase farm income. The Registered Angus herd is genetically superior, and will continue to be improved through artificial insemination with the goal of selling more bulls as seedstock for commercial producers. These herds produce substantial income and serve as the source of animals for the Animal Science Classes taught by the ABAS faculty as well as providing cattle for numerous state educational outreach events (usually in association with UT Extension and state Agricultural Education Program).

   Specific plans for improving the financial stability of the beef cattle operation include:
• Selling more seed stock (which should result in higher returns per animal).

• Evaluate herd numbers and reduce inefficient cows to reduce cost.

• Using the beef operation as a resource for funded research (we are currently developing a proposal for a partnership with UT on a fescue project which is anticipated to bring a minimum of $7000 into the program). These research projects are an excellent opportunity for faculty/student-centered learning and involvement which result in documented research for our faculty. They are also a valuable source of information to state and local beef producers; however, in some cases the financial returns to the Farm Laboratories is reduced as a result of the nature of the research: i.e. research involving fescue hay wrapping is an example of reduced income due to the fact that calves do not gain as well as expected, but the information gained was very valuable and interesting.

• Improvement of this program will be coupled with recruiting to increase students in the Animal Science major (This will not be a cost item, so any enrollment increase is revenue-positive.)

4. Goat Herd
Daniel Boyer, Herdsman

(Current inventory is 23 animals; valued at $1,800 located on the Guy James Farm.)

Tennessee is number two in goats in the United States. Approximately 100 acres of the New Farm on Guy James Road are unsuitable for cattle or crop production but will work for a goat enterprise. The market for goat kids is stable and sustainable. Access to a working goat operation that the students can actively manage is critical for the Small Ruminant Production (ABAS 3500). For these reasons, the expansion of the current small herd is a part of the path to sustainability.

Specific plans for improving the financial stability of the goat operation include:

• Increase the size of the goat herd to 65 does. Since the primary feedstuff will be existing browse, the potential for low-cost production is good.

• Probably the primary benefit of goats is to clear marginal land of unwanted vegetation, making it more attractive and more valuable.

• Marketing kids directly to individuals offers an efficient method for maximizing returns.

5. Crops Production Unit
Danny Troup, Crops Manager
Currently raising 100 acres of corn, 80 acres double cropped wheat and soybeans with 350 acres of pasture and hay crop land including 10 acres of native Switch Grass, Indian Grass, and Big Blue Stem. The crops units are located at all the farm units.

We will continue our cropping systems utilizing corn, soybeans, and wheat as our main grain crops. These crops provide the opportunity to work with major seed and chemical companies for yield and weed control studies and test plots. The cropping units are also essential to the support of the dairy, beef, goat and swine herds because they supply the forages and grains that serve as a feed source for these herds. The commercial gardens will be included as part of the cropping unit. We continue to evaluate the cropping systems we use and will initiate shifts to a more forage based sustainable system as input cost change.

The cropping unit serves as an essential laboratory for the plant science and soil science courses.

Each year the cropping unit produces 2,000 large round bales and 1,000 small square bales of hay for the dairy and beef herds. The unit also provides 3,200 bushels of corn for the beef and swine units. We presently have 4,000 bushels of corn stored at the Stark Dairy for future use with the remainder to be marketed. (The Stark Dairy unit uses approximately 2,000 bushels per year.)

Specific plans for improving the financial stability of the cropping operation include:

- Continuing to evaluate the best crop combination to use to maximize financial returns.
- Explore ways to use grains as feedstuffs to decrease production costs in the beef, dairy and goat units.
- We plan to utilize the cropland at the Diary as long as it is available. However, we realize that when the Stark Dairy unit is sold we will need to adjust our cropping operation and research.

6. Vegetable Gardens and Commercial Fruit Plots
(Primarily conducted by Dr. Phillips, Daniel Boyer and Danny Troup with labor from farm staff students in Dr. Phillips’ classes and members of the Plant and Soil Science Club).

We are in the second year of the student gardens. We have two gardens: one is organic (1/4 acre) and one is low-input (3/4 acre). The gardens serve as the laboratory for Vegetable Gardening (ABAS 3660) and are the source for the MTSU Student Farmer’s Market which we anticipate will grow into another aspect of the path to sustainability.

Plans are in place to install multiple acres of tree fruits, small fruits, strawberries and asparagus. These will be used as the laboratory for the vegetable gardening course and the soon-to-be-developed fruit production course. Harvested produce will be marketed through the MTSU Student Farmer’s Market.

Specific plans for improving the financial stability of the operation include:
• Further development and expansion of the vegetable and fruit production enterprise with the goal of developing a sustainable and profitable farmer’s market program in coordination with classes taught by Dr. Phillips and the Plant and Soils Club.

• Expansion of this program will be coupled with recruiting to increase students in the Plant and Soil Science major (This will not be a cost item, so any enrollment increase is revenue-positive).

7. Commercial Nursery
(Primarily conducted by Dr. Phillips and Danny Troup with labor from farm staff and students in Dr. Phillips classes and members of the Plant and Soil Science Club).

The commercial nursery has been established as a pot-in-pot nursery with a research component and potential for commercial sales.

Specific plans for improving the financial stability of the operation include:

• Expand the commercial nursery and market the products through on farm sales.

• Develop partnerships in order to market in local commercial outlets

8. Beekeeping
Primarily conducted by Farm Staff (Danny Troup, Liz Troup, Daniel Boyer)

Five staff members assisted with and / took the recently offered commercial beekeeping course. We currently have 7 working hives. The plan, at present, is to continue to grow this enterprise and convert a small existing building into a honey processing laboratory. This will serve as the basis for expanding student educational opportunities and public outreach programs (the latter should be classes that we can charge a fee for). We will market the honey products through the Student Farmers Market as the production increases.

Specific plans for improving the financial stability of the operation include:

• Expanding to approximately 15 to 20 hives as our personnel learn more about beekeeping. (Hives valued at $200/each minimum.)

• Develop a small honey processing facility.

• Develop queen rearing and colony production.

• Use this as the basis for a community education program (fee-based).

• Eventually expand to a significant operation so that honey can be sold at a profit (via the student farmers Market and commercial outlets).

9. Agri-tourism Laboratory
Tim Redd, Coordinator and Farm Laboratories Director
The new farm is located in such a way as to make it suitable for Agri-tourism activities. The field day we hosted in 2008 which attracted 200 people demonstrated the interest. It is possible that we could attract paying customers for activities such as seasonal workshops, hay rides, pick-your-own produce, youth events and other activities. These activities are often time-consuming and labor-intensive, so must be carefully evaluated before implementation. At present, we are in a planning stage for this program.

10. Swine Unit
Daniel Boyer, Swine Herdsman

(Current inventory of 60 animals ($9,700).
The Swine Unit continues to provide excellent opportunities for experiential education for our students.

Specific plans for improving the financial stability of the operation include:

- Direct sales of pork to the public for freezer use offers potential to increase returns to the swine operation.

- The swine unit is used extensively to provide animals for youth judging events. We are one of only a few swine operations in the state of Tennessee that is able to provide swine for educational activities and purposes as well as research.