

## SCOE NMP

### EXECUTIVE SUMMARY

The intent of this Nutrient Management Plan (NMP) is to document the actions the management of Southern Cross Organics & Energy, LLC (SCOE) will undertake to reduce the potential for impairment of surface and groundwater resources to ensure compliance with federal and state standards. The management will work with a qualified beef cattle and dairy nutritionist to reduce the nutrients imported onto the farm. Nitrogen and phosphorus levels in the feed will be reduced to the maximum extent possible and practical while maintaining appropriate milk productions and animal growth rates.

SCOE (Figure 1) is expanding its operation to include four additional freebarns (two have been built and two more are proposed), sand separation lane and collection pit for delivering sand free flushwater to the existing methane digester and then through the existing wastewater management system, which includes solids separation before delivery to a large wastewater storage pond before effluent is land applied via seventeen (17) center pivot irrigation systems located on neighboring property. The dairy is designed to handle 2400 lactating cows and 400 dry cows, but until additional freestall barns are built the dairy will be limited to about 1200 lactating cows and 200 dry cows. The existing five stacked-bed animal confinement barns will still house approximately 4,521 beef animals or an equivalent number of dairy dry cows based on manure production. Approximately 700 beef cattle, 1550 heifers, and 825 calves may be grazed on fields owned by the adjacent property owner. No changes are being proposed to the existing five beef stacked-bed confinement barns.

The current cattle feeding operation and new dairy facilities are located in the middle of a large vegetable and forage production farm, which provides the unique opportunity that all manure/bedding materials generated in the barns can be directly used on site as an organic soil amendment/fertilizer. A significant environmental benefit is gained by the fact that a portion of the inorganic fertilizer presently being used on the farmland can be offset by this slow release organic fertilizer material that will be generated by these facilities. The slow release nature of these organic materials has the potential of reducing of net amount of nutrients needed to grow the crops while improving soil tilth. The extent of this benefit is not known, therefore routine tissue testing will be used to assess the crop's nutrient status for fine tuning the amount of supplemental commercial fertilizer needed. Application rates will be below crop uptake levels and will be below levels assumed to impair surface or groundwater resources.

Expanding the animal operations to include dairy cows is being done by the farm for two primary reasons. First, the dairy operation will provide additional income diversity to the farm to stabilize net revenues as volatile commodity markets independently impact their vegetable, cattle, and dairy marketable products. Secondly, the existing methane digester has not performed well using the feedstuff from the cattle barns due to clogging issues and low volatile organic contents. Since, it is known that dairy manure feedstock for digesters performs much better than beef cattle bedding, the conversion of the digester feedstock to dairy manure will maximize its energy production, plus will allow onsite usage of the power that will also increase revenues generated by the digester.

#### Planning Considerations for NMP

In planning the NMP elements of this conservation plan, consideration was given to each of the potential components that might be included in the NMP. These include:

- Manure and Wastewater Handling and Storage
- Land Treatment
- Nutrient Management
- Record Keeping

This plan includes practices and management for only the NMP elements checked. The farm has adequate acres for the utilization of the manure generated by the dairy cows and beef cattle. The diet of the animals will be balanced by a qualified animal nutritionist and will be adjusted as animal performance, feed ingredients, and economic considerations dictate, while minimizing nitrogen and phosphorus manure nutrient content.