CASE STUDY: SOYBEAN, COMPOST, SEEDS AND BEEF

MARA ORGANICS is well known throughout the rural community of northern New South Wales and beyond. The Larssen family company employs 12 full-time people and additional seasonal workers on the 5000 acre property. The average annual rainfall is 40 inches.

The products are Australian Certified Organic.

The company has four inter-related organic enterprises:
- compost and compost tea
- soybean: production and processing
- grass seed
- beef.

Stuart Larssen explains that when he first became involved in the management of the property, about forty five years ago, he followed the successful conventional practices that had been established by his father and grandfather. However, he observed that the practices that had been established were
- depleting the soil
- becoming financially unviable because of the high cost of inputs
- causing health problems for family members.

Stuart calls his system *Sustainable Organic Farming Techniques*, SOFT™

Stuart describes the soils as podsols, black cracking clays and yellow clays. At the time of changing over to the organic system, the soil fertility and structure were poorer than they had been forty years earlier–and getting worse.

Stuart advises that it took three to four years to change the farm programs from conventional to organic and the organic system is much more labour intensive. Costs of production are about the same as they were for the conventional practices: now mainly labour and machinery instead of less labour and chemicals. He now has six tractors. However the farm is much more productive now that the soil has become *alive*.

Compost

Figure 98: Compost heaps

Figure 99 : A handful of compost

Figure 100: Bagged compost

Compost is an essential part of the farm production and is also a commercial enterprise. It is made from soybean remains after the seed is harvested, hay from grass seed crops and pasture hay. In addition to compost being spread over established pastures at 12½ tonnes per hectare over three to five years, it is always spread over a new crop.

Stuart explains that soil tests have shown that the compost encourages beneficial microbes and releases available nitrogen at the rate of 240 kg per hectare.

Figure 101: Stuart and Ross Larsson beside a compost heap; in the background are bales of hay to compost and the tank that holds water for watering the heaps

The compost heaps are continually monitored for maturity, moisture content and nutrient production. Monitoring is a sophisticated system and is recorded on the office computer. The content of the heap is adjusted according to calculations on the computer. For example the heap can be adjusted so that it is favourable to a particular range of beneficial microbes depending on the end use of the compost. Some end uses need fungi whereas others may depend more on bacteria.

Compost tea is produced in tanks from 220 kg of compost, lime, water and guano phosphorus. It is not sold but used on the property as soon as it is mature.

Soybean

Soybean production is part of the seven year crop rotation on the property: five years soybean, one year double crop wheat or barley, one year grass seed crop.

Soybean is produced for
- market
- double cropping: with oats and rye on lighter soils and with wheat or barley on heavier soils.

Compost is essential to each soybean crop.

Processing. Mara Organics have a large soybean processing enterprise with two full-time engineers attending to the multi-million dollar equipment in the shed. They process their own crop and buy in other from other organic growers. In addition to processing and packaging whole grain, they produce grits (cut-up beans) and flour and will soon produce *isolated products.* The latter are soybean products rich in specific proteins for the health food market. Extrusions from the grits and flour production are used as organic protein meal for the broiler industry.

Beef

The breeding herd contains 750 Hereford cows and cows that are F1 progeny of Hereford cow and Brahman bull cross. The F1 cows are mated to Angus bulls and the progeny used for kill, not breeding. Hereford cows are used for breeding. The Angus bull is the terminal sire. Each year 650 head are dropped on the property and 100 of these are kept for replacement. The calves are weaned in the paddock onto a green feed mix of oats, rye and barley.

In addition 500 head are bought in each year for *finishing*: these are from organic producers in the rangelands areas.

Figure 102: Compost ready to spread over the grazing paddock

Stuart's son, Ross, explains that paddocks are designed for cell grazing: with a stocking rate of 100 head on 21 ha. The pastures include Rhodes grass, setaria, oats and rye and when necessary a grain ration is provided. Compost is spread over all the pastures and cell grazing adds fertiliser, particularly important on the poorer country.

At 330kg live weight the cattle are put into the *finishing* program with good pasture feed or a supplementary feed using soymeal and other products, as required. At this stage there is no need for mineral supplements. Ross thinks that the compost spread on the pastures may be supplying what is needed. The carcass is 180 to 260 kg dressed weight.

The cattle don't have a worm or other health problems and Ross says this is due to the good nutrition.

The organic beef is slaughtered at certified abattoirs and is marketed to a large food chain and also exported to Korea, Japan and the United States of America.

Grass seed

Stuart's family has been producing grass seed for many years but Stuart says organic production is a challenge. However, he is pleased with the high quality of the seed even though the yields are not as high as they were under conventional farming methods; yield may have dropped but germination rate is improved. He is about to try a mix of soybean and molasses as an organic fertiliser to improve nitrogen supply to the seed crop. He introduces woolly pod vetch as a source of nitrogen and when the cattle are on the crop they don't eat the young vetch but as it hays off, they eat the vetch and consequently spread the seeds through the paddock.

Weeds such as gooseberry can be a problem in the black soil country; the weeds germinate early in the season and are ploughed out as they appear (sometimes several times). In this way, the weeds are used as a green manure crop. The grasses are planted after the weeds have germinated and been eradicated.

The crops planted for grass seed also provide grazing for livestock and hay for compost.