
INTEGRATING CROPPING AND LIVESTOCK IN THE MANAWATU

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OVER the past 15 to 20 years, cropping in the lower part of the North Island has developed from small beginnings to the quite large areas that are grown today.

Farmers have generally approached a cropping enterprise from a small scale — e.g., only one or two paddocks — then perhaps **increasing** to half their farm and after finding it **profitable** and economic, some may eventually put their whole farm into crops of some description. Meanwhile, as there is no production during the winter months, they must integrate their cropping system with stock:

- (a) To give a steady cash flow during the unproductive months of cropping, and
- (b) To clear the farm of stubble and grass **that** would otherwise be wasted.

Such livestock systems include fat lambs, dry sheep, and cattle.

The swing towards producing crops has been caused mainly by an economic problem faced by the farmer. In the past, the livestock industry has fluctuated, sometimes to the detriment of the farmer, and during this period cropping has provided a much needed income to the farming enterprise.

The enterprise that I farm is a total of approximately 240 ha, including 80 ha of leased land. The home property of nearly 160 ha is in the northern borders of the Taonui Basin which used to be a backswamp area between the Manawatu and Oroua rivers.

The soil situated at the front of the property along Lockwood Road is classified as Kairanga silt loam, graded 1 A, and recedes back into the farm to Kairanga peaty silt loam graded 1B. Finally, the back is mapped as Opiki peaty silt loam grade 2. Although the land is of high fertility, it is necessary to apply 2 tonnes of lime per hectare every 3 to 4 years and 200 kg/ha of phosphate on the new grass every year. The soils are mainly free-draining except for the front third which is tile-drained. We have a series of open drains with outlets into the Drainage Board system, and this type of drainage has proved to be adequate for the soils on the property.

A general description of the farming system employed is that every paddock produces a crop through the summer months and during the rest of the year lambs are bought for fattening. Crops grown are certified Ariki and Manawa grass seed, peas for seed, wheat and barley, rape seed, and any other crop that is economic at the time.

The property, from about February to March, becomes orientated to lamb and hogget fattening. The stock graze on the remains of last year's grass seed crops, next year's autumn-sown grass seed, and also autumn-sown feed barley — that is, black barley. A small area of fodder beet is grown, producing about 200 to 300 tonnes of feed for the hoggets. The development of this system has mainly been made possible by the completion of the Manawatu Catchment Board's river control scheme which has controlled medium to large floods which used to occur and affect large parts of the district. Before the scheme was introduced the land could only run stock of reasonable mobility because of the risk of flood.. When a flood occurred the stock had to be moved to higher country — in our case the Pahiatua Track run-off. Therefore, one could see that the land was not being used to its optimum. Because of the work of the Manawatu Catchment Board and improvement schemes carried out by the Manawatu Drainage Board, a start on an intensive cropping programme has been possible.

We started cropping with one or two paddocks of wheat and grass seed and when we found it an economic prospect we increased our areas. Our capital outlay was small through buying used tractors and equipment and employing contractors for sowing and harvesting. As the crops brought in rewarding profits, we were able to increase our machinery so that we became more independent. We still employ contractors for specialized work such as windrowing and hay and straw pressing. Also, with the increasing risk of crop loss owing to the unavailability of contractors, we decided it was very necessary to have our own equipment to avoid a crop failure which would be devastating at that crucial time. Because of the volume of grain grown in the area, it was becoming more difficult to find accommodation for it, so we built "on farm" storage facilities and drying equipment in 1975. With the two facilities of storage and drying we were able to use our harvesting machinery to the maximum and the economic results of our cropping enterprise have been rewarding.

From our experience, when planning sophisticated equipment, such as grain storage and drying, it becomes very necessary to employ the services of qualified people to carry out feasibility studies.

We try as much as possible to combine our resources with a neighbouring property. Such resources are labour, harvesting, machinery of all kinds, drying, and transport. Each property has equipment that the other has not, and so the objective is to use resources to the maximum, thus utilizing vital time and enabling us to harvest crops to the advantage of both properties. This has been very successful because of the fact that our crops generally mature earlier than those of our neighbour.

With the wide variety of crops that can be grown and the type of stock purchased in the autumn, we have security in our operations. Generally, crop prices are contracted before sowing so that the farmer may farm his land with confidence and have no need to worry about prices. Efforts can then be concentrated on increased production. Grass seed has been contracted some years but usually prices are negotiated after the seed has been cleaned. Sheep are mainly purchased at auction where the buyer has to determine the type of animal that will make maximum profit during the time available. These animals may be of good quality if prices are low, or medium to poor if prices seem high. With sheep, in some years there are reasonable spring prices, but in others the monetary result has been poor owing to the instability of markets. Let us hope that the price smoothing scheme will help to eliminate some of the past fluctuations that have been devastating for meat and wool.

With the wide range of crops that can be grown, there is an opportunity some years to take advantage of high prices of a particular crop. For example, two years ago we did well with a high yielding crop of *Phalaris canariensis* (canary seed). Also there have been other crops such as certified grass seed, and very high yielding wheat. The farmer needs to plan far enough ahead to put in an economic area so that he can cash in on these opportunities.

The husbandry of the stock brought on to the farm is a very important facet of the system. All incoming stock are drenched and later dipped. We use a system of mob stocking and a rotation where the sheep are changed to a new paddock daily. This gives each paddock a break of about 14 days and can be done because of the free-draining soil.

Fodder beet is lifted mechanically and fed out into each paddock. Sheep have found this type of feed very palatable and good in stress situations. Hay cannot be fed because of the risk of species contamination in the certified grass seed paddocks.

Over the past twenty years the crop rotation has been a 3-year cycle — that is to say, from grass seed to cereal to legume, rape or birdseed, back to grass seed. This rotation may be lengthened to an extra year of grass where we take off a second crop of grass seed or make clover hay as our stands are predominantly clover in the second year. This measure may have to be taken because of the soil structures. It is not a problem yet but unless steps are taken at an early stage it may become prominent in the future. We have noticed some changes in our soil structures — e.g., the soils are compacting slightly and do not appear to be as crumbly as they were 10 to 15 years ago. However, there has been no deterioration in yield or quality of our crops.

Another problem can be drainage, as after a heavy rain, for example, the main rivers are in flood. At this point we lose the use of our outlets because local water is not released into the river and therefore backs up. The Drainage Board is looking very seriously at pumping stations to relieve this problem. Many hundreds of hectares of highly productive land in this area are affected and need relief. In dry periods, with our free-draining peaty soils, we can swing to the other extreme of being slightly over-drained.

Some weeds can be a nuisance — e.g., stinking mayweed or nightshade. After the crop is established and the spraying programme completed, a hazard can develop through very wet or very dry conditions allowing weeds such as stinking mayweed or nightshade to outgrow the crop. If the expense is warranted, an aerial spray contractor is employed to apply suitable chemicals to try to control the situation. Another problem is that of disease. An example is net blotch in barley that has shown itself in recent years. Fortunately science is helping the grower by suggesting that the seed be treated with the recommended chemical.

Recently I had an opportunity to view some European and British farming. I was able to visit three private plant breeding complexes and a large mixed farm. I was impressed with the prices that the British farmers received for some of their production — about \$600 for a good two-year-old steer, \$35 to \$40 for lambs, \$140 per tonne for barley. Large quantities of nitrogenous manure per hectare were used — 200 units and over per

hectare is common practice. Their methods of application over crops varied from a pneumatic system when the crop is short to a spraying-on through very long booms at all stages of crop growth. Wheel tracks were prepared in the fields at the time of planting by blocking off the appropriate sowing outlet. Two crops were grown on the same ground, for example, nut and fruit trees with cereals or vegetables underneath in the warmer countries. There is the widespread system of harvesting grass and taking it to the animals. A tremendous range of plant, equipment, chemicals, and fertilizers is available and manufactured in close proximity. Finally, nearly all suitable land seems to be intensively cropped. After motoring for 16 000 km in ten countries, we did not see anywhere the expansive grasslands we see in New Zealand.

The local cropping scene looks bright in that there are several local factories that must be supplied. However, the world scene is a different story as there are substantial surpluses of grain being built up by the larger world producers. This could mean that because of high handling costs New Zealand could be left behind. The New Zealand grower is at a distinct disadvantage because of the high cost of inputs and the geographic isolation of New Zealand. There is no doubt our land is capable of producing crops with the same high quality as anywhere in the world. Because of this there could be more specialized multiplication of seeds from the northern hemisphere, thus taking advantage of two crops per year. This will become more attractive to the breeder when plant breeders' rights come more effectively into operation.

In the research field, I believe we have had real benefits from such organizations as Grasslands and Crop Research Divisions, and the Ministry of Agriculture and Fisheries. For example, the herbage cultivars that Grasslands have produced have been an economic proposition for multiplication, and a worthwhile asset in our own sheep grazing system.

Crop Research Division are developing new strains of cereals that are suited to our climate both in growing conditions and quality. Some of these are soon to be released and if successful will boost the quality of production. They not only work in the cereals field but also with many different crops. We have actively collaborated in the trials of this very important and interesting work. Without farmers' co-operation their job would be difficult and much slower.

I believe that more active research and recommendations for farm shelter are required quite urgently. The main shelter in the Manawatu in the past has been macrocarpa but these have proved unsuitable for the area and are being cut out, but are not being replaced. After travelling through Europe and the United Kingdom, one becomes aware of how bare some parts of New Zealand are.

Land drainage is another field that needs greater emphasis in its importance to all kinds of production. Although many successful farmers have good drainage systems, some are still trying to farm and grow crops in very wet conditions. A basic requirement is good drainage and money spent in **this** direction is soon recovered through good quality production and higher yields.

Our future plans will be to carry on in the same pattern but as the economic viability of cropping clearly slows up we may 'be inclined to become more livestock orientated. With the present price levels of the crops that we produce, the high cost of replacement of equipment, chemicals, fertilizers, and labour, we could be presented with the necessity of rethinking our system. Having realized the productive possibility of our land, I am sure we can shift into alternative types of production, either livestock or cropping, with very little extra capital outlay.

In conclusion, to run an intensive cropping and livestock enterprise, sound forward planning is a basic requirement, and the following aspects should be considered:

- Study the market trends of grain and seed.
- Endeavour to create the right environment for each crop.
- Early recognition of disease and pests.
- Correct decisions at harvest.
- A good business head in livestock operations.
- Top stock management.
- An interest in farm politics.
- Good relations in the finance and business world, and a motivation to work long hours with nature's time scale will bring its own satisfaction and rewards.