
GROWING PEAS UNDER IRRIGATION

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INTRODUCTION

After running an intensive cropping farm for fifteen years, eight years using spray irrigation, it is my opinion that peas are the most difficult crop to grow and continue to grow in a crop rotation without losing yield. There are six main factors affecting harvestable yields.

- Paddock history.
- Choice of cultivar.
- Cultivation and sowing.
- Weeds and diseases.
- Irrigation and management.
- Harvesting.

PADDOCK HISTORY

In the early years of cropping on our farm we achieved very good yields of 3.5 and 4.0 tonnes per hectare from garden peas for seed, grown as the first step in the rotation from pasture. Using a four year rotation, yields from the second pea crop dropped quite considerably, and the third crop produced an uneconomic yield of around 2 tonnes per hectare. We considered mildew, resulting from sowing too early in cool ground temperatures, to be the main problem, so we started sowing later — in the first week of November. This improved our yields slightly but I was still unsatisfied with the results.

After consultation with Dr Bill Jermyn of Crop Research Division of D.S.I.R., and reading correspondence from England, I realised that soil compaction through lack of humus in the soil, caused by our four year crop rotation with no pasture, could be our main problem. Close pea rotation was also causing a fungus and disease build-up in the soil.

We introduced ryegrass for seed production into the crop rotation, extending the rotation to six years, and have had encouraging yield increases from this practice, although still not high enough to make garden peas a very viable crop to grow. Our crop rotation is now ryegrass, peas, white clover, wheat, white clover, barley.

From these early experiences I am of the opinion that garden peas can play a very viable and important part in early cropping rotations. However, as soil humus declines from the original pastoral farming, through a continuous

cropping rotation of cereals, clover, ryegrass and peas, garden peas become barely economic to grow.

One might ask — why persevere with garden peas when yields have been declining. I have continued to grow them because of the more stable and higher contract prices and more reliable market over the past years compared to field peas. So with price and marketing in mind I have tried to grow what the trade prefers.

CHOICE OF CULTIVAR

With the declining yields in garden peas we decided to change to more prolific types such as marrowfat peas and Whero. The marrowfat peas have been yielding very well, but to achieve high colour, windrowing is necessary and this has proved too risky in our windswept environment. We went back to direct heading, but the loss in price through lack of colour brought the return per hectare down to a similar level to the later stages of garden peas.

Whero, on the other hand, has proved very reliable, giving consistent yields of 3.5-4.0 tonnes per hectare. However, if every cropping farmer grew only Whero because of its more reliable growing characteristics and yields, there would be potential for over production and major marketing problems.

Some of the improved blue pea cultivars have been performing very well on neighbouring farms under a continuous rotation such as ours so we have now sown some of these.

CULTIVATION AND SOWING

As mentioned earlier, peas need a relatively loose, uncompacted seed bed to germinate and start their early growth vigorously. On our Lismore soils, which break down very freely, we often work down the furrows only once with a rotocumbler before sowing. If ground conditions become dry and cloddy we may work the furrows twice.

Later sowing has also reduced the risk of soil compaction. I feel the risk of heavy rain, that compacts the soil after sowing, is far greater in July-August, and if we

continue with the odd paddock of garden peas we will sow them no earlier than mid October. The other risk with early sowing in cold ground temperatures is the possibility of poor germination leaving a weakly established, open crop with no chance of high yield potential at harvest.

All our peas are flat rolled with an unballasted water roller when the plants are two to three inches high. Unrecoverable damage can be caused if rolling is at too late a growth stage. We have found that Cambridge rollers do more damage to peas than a flat roller. The other reason we use a flat roller is that a complete clod and dirt free sample can be achieved when direct heading on a flat surface.

Fertiliser and lime are mixed and spread on the furrows with a bulk spreader prior to drilling, at a rate of 450 kgs of superphosphate and 900 kgs of lime per hectare. Prior to the last pea seminar held here at Lincoln we were using pea mix fertiliser consisting of potash molybdenic reverted super. We were told by several agronomists that we were wasting our money — trials using pea mix fertiliser and straight superphosphate had shown no difference in yield. We changed to straight superphosphate and noticed no drop in yields and a substantial saving in fertiliser costs per hectare.

WEEDS AND DISEASES

Weeds can cause severe loss in yield if pea crops are not watched closely in the early stage for weed contamination. However, we have fortunately had no great weed problem in peas to date. The major weed is fathen (*Chenopodium album*) which is very easily eradicated using MCPB. This enables us to successfully undersow our peas with white clover, with no risk of having to eradicate other types of weeds with a spray that would kill the white clover.

Yarrow (*Achillea millefolium*) is another problem, but we are having success with surface working in the autumn and leaving a mob of cull ewes on the paddock to clean up the yarrow roots. In the odd badly infested paddock we use Versatile in the autumn before sowing peas in the spring.

All our weed spraying in peas is carried out prior to rolling. We have found that if we roll first, then wait for bruising to heal, the crop becomes too advanced in growth and chemicals applied at this stage appear to knock the peas about far harder than if they are sprayed in their early growth stage.

Our disease problem has definitely reduced since we extended our rotation to six years. We have noticed that mildew contamination in a wet spring is far greater in early sown crops with more growth, than late sown crops with less growth. Later sowings, however, are only possible under irrigation or in a higher rainfall area on good soil.

IRRIGATION MANAGEMENT

We irrigate our peas on average every fourteen days, with an application of 50 mm each pass. I would like to irrigate every ten days with less water each pass, but the design of the schemes and area they cover does not enable us to do this.

On our Lismore soil in dry seasons, we irrigate the peas twice before budding to promote vine growth for easier harvesting, once at flowering and once at the pod filling stage. Sometimes two applications may be necessary at the pod filling stage to reduce the risk of undersize peas. Under the new garden pea pricing formula, which is based on machine dressed weights, a farmer could have a very substantial dressing loss if peas are not irrigated for maximum pod fill.

We prefer drier seasons for peas, as there is less disease, and irrigation management is easier. Stunted growth and poor colour can result through exceptionally wet ground conditions and bad mildew in wet, cool seasons.

HARVESTING

We direct head all peas except for marrowfats. Under the new contract pricing formula, as previously mentioned, the farmer who produces the best sample will be rewarded. I feel it is a must to flat roll rather than Cambridge roll peas, to eliminate small clods and soil in the sample when direct heading. Clods and soil can attribute to a large weight loss when machine dressing occurs. Also with skyrocketing freight costs, there is no point in paying to freight soil and rubbish to the merchants.

In some instances, where undersown clover has become dominant at harvest, we will desiccate to reduce the risk of the clover staining the peas. In short crops of peas we head one way, into the lay of the crop, to keep the cutter bar of the header off the ground as far as possible to reduce dirt in the sample.

We handle peas as little as possible after harvesting, to avoid cracking and splitting. While harvesting through the day, peas are tipped into a bulk shed, with the final truck and trailer load harvested late in the day staying on the unit to be delivered early next morning before harvesting begins again. This enables us to deliver about 20% of our peas direct off the header, with the remaining 80% being loaded with a three metre loader and transported when the pea harvest is completed.

CONCLUSION

Over the years, peas would be our poorest paying crop in terms of net returns compared to cereals and white clover. They are an expensive crop to establish, as far as seed costs and chemical requirements for weed control are concerned in comparison with cereals under our system. It is therefore essential to achieve as high a yield as possible, through correct selection of paddocks or, as in our case, extending the rotation to at least six years. I feel the price being paid to the grower is not high enough, considering the extra damage caused to combine harvesters by peas and the extra hassles of handling.

Yields consistently around four tonnes per hectare, which are very hard to achieve, are necessary for peas to be a viable crop.

One way of relieving one major cost of seed, is to dress one's own seed for sowing on the farm. There is also no

need to waste money on fancy fertilisers, when peas are so temperamental to grow after different paddock histories.

After these frank statements, I still feel peas are an essential crop in an intensive cropping rotation. They are not a fertility builder but certainly take nothing out of the soil. They are also one of the best crops to sow white clover under. With increased nitrogen applications on cereals we are getting very poor clover establishment under these crops, hence we get much more grazing after harvest from undersown pea crops than cereals.

We will certainly carry on with peas in our rotation and only hope the price to growers is more realistic in the future.