

Pasture Cropping

A land management technique by Colin Seis



Pasture cropping is a zero tilling technique of sowing annual cereal crops into living perennial (in this case, usually Australian native perennial plants) pastures and having these crops grow symbiotically with the existing pastures with real and advantageous benefits for both the pasture and the crops.

This idea was initiated over 15 years ago and since that time Colin Seis, on his Winona property, has spent much of his time perfecting this technique and now also conducts workshops educating other landholders on the methodology. This development of the pasture cropping system over the years has led many different types of winter and summer growing crops being grown without destroying the perennial pasture base.

It may appear that pasture cropping is simply a cropping technique. It is much more than that. Pasture cropping is the combining of cropping and grazing into one land management system where each one benefits the other. The potential for profit and environmental health in being able to do this are enormous and a lot of landholders in many regions of Australia are showing this to be the case.

The original concept of sowing crops into a dormant stand of summer growing (C4) native grass, like red grass (*bothriochloa macra*) was thought to be a very inexpensive method of sowing oats for stock feed. This certainly turned out to be true; It was quickly learnt that there were many side benefits and that we were only touching the surface of a land management technique that is proving to be revolutionary. The grazing crops performed so well that it was obvious that we could expect to harvest good grain yields as well. Enhancement of the pastures was also another very real and tangible benefit.

Over the years there were more advances with the technique where cereal crops in NSW, South Australia and Victoria were sown into winter growing (C3) native perennial grass with good results such as oat crops yielding over three tonne/Ha. Additionally, there have been good results in Victoria and NSW, sowing summer forage crops into winter dominant native perennial pastures. As a direct result of the ongoing work and the landholder education these same pasture cropping methods are being used to good effect in such diverse places as Scandinavia, USA with similar methods in use in some south American countries.

It was also learnt that sowing a crop in this manner stimulated perennial grass seedlings to grow in numbers and diversity giving considerably more tones/hectare of plant growth. This produces more stock feed after the crop is harvested and totally eliminates the need to re-sow pastures into the cropped areas. Cropping methods used in the past require that all vegetation is killed prior to sowing the crop and while the crop is growing.

From a farm economic point of view the potential for good profit is excellent because the cost of growing crops in this manner is a fraction of conventional cropping. The added benefit in a mixed farm situation is that up to six months extra grazing is achieved with this method compared with the loss of grazing due to ground preparation and weed control required in traditional cropping methods. As a general rule, an underlining principle of the success of this method is “One hundred percent ground cover One hundred percent of the time”.



To illustrate this, below are the details of a 20 Ha crop of Echidna oats that was sown and harvested in 2003 on Colin Seis property “Winona”. This crop’s yield was 4.3 tonne / Ha (31 bags/ acre). This yield is at least equal to the district average where full ground disturbance cropping methods were used.

Costs / Ha

- * **Spraying** \$ 5.00
 - * **Herbicide** \$14.00
 - * **Sowing** \$ 7.19 (Using own equipment)
- (* note – contract sowing rates currently valued as \$20 per hectare)
- * **Fertilizer** \$35.00
 - * **Harvest** \$28.00

* **TOTAL** **\$89.19**

Yield **4.3tonne/ ha**

Value **\$150/tonne (value at Dec 2003)**

Total **\$645 / Ha (\$150 x 4.3)**

PROFIT \$555.81/Ha

This profit does not include the value of the extra grazing. On Winona it is between \$50 - \$60/ha because the pasture is grazed up to the point of sowing. When using traditional cropping practices where ground preparation and weed control methods are utilised for periods of up to four to six months before the crop is sown then no quality grazing can be achieved.

Other benefits are more difficult to quantify. These are the vast improvement in perennial plant numbers and diversity of the pasture following the crop. This means that there is no need to re-sow pastures, which can cost in excess of \$150 per hectare and considerably more should contractors be used for pasture establishment. Even more difficult to calculate are the environmental benefits of leaving a grassland intact by maintaining one hundred percent ground cover one hundred percent of the time.

There is growing evidence, anecdotal and scientific, to support improvement in soil health, improved water use efficiency and general improvement in ecosystem function. Another asset is that these methods lead to a measurable increase in soil carbon levels which may produce both a cash value in future carbon trading ventures as well as reducing some of the atmospheric carbon dioxide which contributes to what is commonly referred to as the “greenhouse effect”.

History has shown us that many new or different techniques are scoffed at when an idea is first presented. However, many farmers and graziers from all over Australia have adopted pasture cropping with serious interest being expressed worldwide.



Independent studies at Winona on pasture cropping by department of land and water have found that pasture cropping is 27% more profitable than conventional agriculture this is coupled with great environment benefits that will improve the soil and regenerate our landscapes.

The CSIRO have also taken pasture cropping seriously investing in a three-year trial project that was conducted by Dr Sarah Bruce et al on Winona. The project looked at the many things that pasture cropping can achieve. Water use efficiency, improved soil health, nitrogen use efficiency and weed control are just some of the positive outcomes. Winona now carries more stock using pasture cropping methods than at the height of the “Superphosphate cycle” of the 1960’s style of improved pastures with a huge reduction in input costs.

Until this point in time pasture cropping has been practiced with the use of chemicals to control weeds and conventional fertilizers are used to manage soil chemistry, but some crops are being now sown without these inputs. The pasture cropping technique can be used to grow organic crops. This can be done without using a plough or destroying existing perennial pasture.

The benefits of pasture cropping are enormous, way beyond the short-term crop yields. It gives farmers and graziers a tool to effectively manage their properties whilst individually contributing to a healthier environment. It is the difference between the poorly used term “sustainable” and the better objective “regenerative agriculture”.

Note:

Because of an ever-increasing level of interest in pasture cropping, Colin Seis has been helping landholders in many parts of Australia. He does this by advising them with workshops and private consultancy on the best methods to use for their particular area, topography, soil, rainfall and pasture type. This Consultancy type service can also be given to any interested party or group.

Colin Seis
“Winona”
Gulgong
NSW

Ph 02 6375 9256 International callers replace 02 with +612

colin@winona.net.au