Farmer Experience with Chicory on the Central Tablelands and Slopes of NSW

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Chicory was introduced into Australia as a forage plant in the late 1980s following the development and release of the cultivar 'Puna' in New Zealand (Rumball, 1986). Since that time, many Australian farmers have trialed chicory to varying degrees and some have successfully incorporated it into their forage systems. Research results (Kemp *et al.*, 1993; Kemp and Michalk, 1998) have shown chicory to be a productive species, but with some special management requirements. Chicory is particularly productive in summer when the quality of the forage normally available is low. These results have been supported by general comments from farmers and their advisers. The advent of chicory has some unique aspects, as there is little collective experience in Australian agriculture on the use of perennial herbs. Most sown pastures are based on grasses and, or legumes while the main alternative summer forages have been annual crucifers such as forage rape (Kemp, 1987).

During early 1998, a survey of farmers who have sown chicory was done on the Central Tablelands and Slopes surrounding the towns of Orange, Bathurst and Cowra. The primary aim of the survey was to record farmers' experience with chicory as a forage plant and to compare their observations with current research. This paper presents a summary of the information obtained from the survey on the management of chicory.

Method

All producers were interviewed using a common questionnaire, often in the paddocks sown to chicory. In such cases, data was also collected on the current densities of chicory in those paddocks. Questions were asked on chicory establishment and management as well as paddock details and histories. Details from 24 properties and 41 paddocks were recorded in this survey. Producers were selected through district advisers and seed merchants who helped identify those that had sown chicory.

Results and discussion

The majority of paddocks surveyed were successfully established with chicory using prepared seedbeds or direct drilling. The three areas suggested by farmers as being important for good establishment were, in order of priority:

1. Good weed control prior to sowing.

2. Correct sowing depth (1-2 cm).

3. High seeding rate (up to 4 kg/ha for special purpose pastures).

The main use for chicory was in mixtures with legumes and perennial grasses (78%). Cocksfoot was the most commonly sown grass and white clover the most commonly sown legume. White clover and chicory have been shown to be a very compatible mixture (Kemp and Michalk, 1998). Only 22% of paddocks were sown as a specialised chicory pasture. A companion legume was sown in these cases.

The most common problems indicated by producers were:

- Persistence of chicory.
- Weed control (especially of thistles).
- Grazing management.

Many producers suggested that chicory's persistence in a pasture was often primarily related to the grazing management of that pasture. Grazing management was seen as a problem in that it required some skill, it did not suit every grazing system and the better practices were unknown at the time. Research has also shown that chicory needs to be rotationally grazed to persist (Fraser *et al.*, 1988), ideally in a four paddock system (Kemp and Michalk, 1998). Farmers were uncertain about the use of herbicides for broadleaf weed control in chicory stands. Some had used extra grazing pressure to control weeds when establishing chicory.

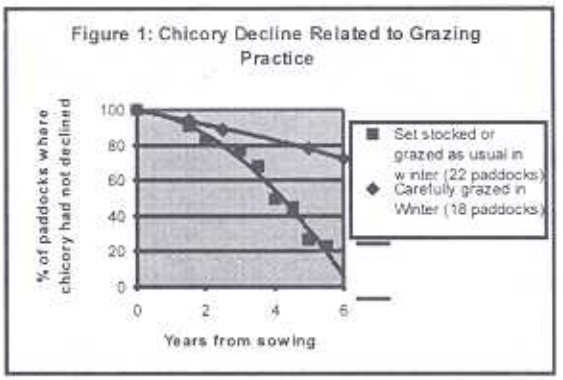
Farmers were specifically asked what practices they believe improves the persistence of chicory. The most common responses were:

- Allow chicory to seed occasionally.
- Graze similar to lucerne or specialised grazing.

These responses emphasis that chicory requires controlled grazing for persistence. Allowing chicory plants to set seed may indicate the need to complete its annual phenological cycle and, or for the recruitment of new plants from the seed set, to enhance the longevity of the stand. The exact reason is uncertain at this stage. Chicory does appear to be more flexible than lucerne in its management requirements (Kemp and Michalk, 1998), but for those unfamiliar with the plant it is arguably better to start with a conservative approach to management as required by lucerne.

Of the 41 paddocks surveyed, 24 had declined in their chicory content and 17 had not at the time of survey. One factor found to be possibly linked to the persistence of chicory in a pasture was how chicory was grazed during winter. Paddocks that were lightly grazed or not grazed at all during winter were compared to the paddocks that were grazed similarly to other times of the year or set stocked over winter. The paddocks that were more heavily grazed in winter had declined more than those that were rested (Figure 1).

These results imply that uncontrolled grazing of chicory in winter will cause a decline in the chicory content of a pasture. This has been noted as a problem in New Zealand (Hare *et al.*, 1990) however due to the nature of survey data this result can only serve to highlight that this area of grazing management could be researched further. Those farmers who said they grazed carefully in winter were often also those who were inclined to graze chicory carefully all year. These results stress that grazing management is critical for chicory's persistence. Heavy grazing of chicory in winter could deplete the plants reserves at a time when it is not actively growing to replenish them and, or



damage the crowns enabling disease infections to more easily occur (A. Nikandrow, personal communication).

Despite the few problems indicated by farmers, the majority were very happy with chicory as a pasture plant and its feed value. Many of the farmers surveyed were planning to sow more. These results support the outcomes of current research (Kemp and Michalk, 1998) and have added additional information that will be useful in developing an advisory package for chicory.

Acknowledgments

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