

SERRADELLA - A SPECIES FOR SANDY ACID SOILS

Sam Stephens
"The Rock"
Coolah

BACKGROUND TO THE SPECIES SERRADELLA

What is serradella? Serradella is a deep-rooted winter growing annual legume. It normally germinates with the autumn break of the season and then grows on until it flowers either in late winter or from early to mid spring (this depends on the cultivar). As the spring-summer season progresses, serradella sets seed and dries off. It gives high value grazing in winter and spring and useful dry summer feed.

The serradellas most common in Australia are from the group of Yellow Serradellas (*Ornithopus compressus*). These came from and were native to the Mediterranean and central European regions.

Most of the development work with Yellow Serradella has been done in Western Australia where it was found to have a particularly important place in the deeper sandy soils where other legumes, such as subclover, failed to do well. It is in this role that it has been found useful in NSW.

USE OF SERRADELLA ON "THE ROCK"

Our country is situated in the northern end of the Central West Slopes of NSW. Our annual rainfall is supposed to be 660 mm, falling both in summer and winter. The country is mainly basalt, with pockets of lighter sandy soils. These sandy soils are sandstone derived, acid to extremely acid, often high in aluminium, low in clay content, low in natural fertility and can vary in depth from 20 cm to well over 1 metre.

These soils in the past have been considered to be quite unproductive, not growing much - apart from some coarse seedy summer grasses. We found serradella to be well suited to these soils. Though it was slow to thicken up, it persisted well and as it is a prolific seeder, after about 2 to 3 years, we finished up with a dense pasture.

The cultivars that we used were Pitman and Uniserra (Uniserra matures about two weeks earlier than Pitman). We sowed 2 kg/ha of each cultivar. The seed was inoculated and the pasture undersown with a crop of lupins and fertilized with 120 kg/ha of single superphosphate. Since that time the pasture has been topdressed every second year with 220 kg/ha single superphosphate. The pasture, although not growing very tall, has produced quite well. On a set stocked basis it has carried 6 DSE/ha for nine months of the year with three months out in the autumn waiting for the break.

We have paddocks, as is common to most areas, comprising different soil types. They range from the rich basalt soils to the lighter sands as described before. When sowing these paddocks we use "shotgun" seed mixtures made up of lucerne, subclovers, white clover and serradella. We find that the pasture species will adapt to the soil types that suit them best. One paddock is of note. It was contoured after sowing - two contour banks that just happened to be where the soil types changed. The bottom block is sand and looks like a pure stand of serradella. The middle block, a mixture of sand and basalt grows subclover and serradella with an odd lucerne plant while the top block of basalt soil looks like a lucerne stand

with subclover. The end result being that we have a pasture that persists, that utilizes all the soil types and so achieves greater productivity.

A FEW GENERAL POINTS ABOUT SERRADELLA

It is an extremely nutritious pasture legume being at least the equal of subclover in the vegetative stage and superior in the dry stage. There has been no evidence of toxins such as oestrogen and though I have not grazed cattle on it, I believe that there has been no evidence of it causing bloat.

We have found that it can be grazed heavily at most times, but not at flowering, especially in the early years. We have found that it needs heavy grazing in the summer for a better germination when the autumn rains come. It persists well in the dryish springs and it kicks on again if rain falls.

The sowing technique in the establishment of serradella is critical. Seed germination percentage is often low, even with heat treated seed. The seed is very small and will not germinate if sown deeper than 2cm. We use a band seeder to help guarantee better seed placement followed by a tyre roller. Other neighbours use press wheels and levelling bars to help achieve better results.

Varieties in the pipeline: I saw a cultivar called Avila in a trial at Coolah that was most impressive. It was a robust, tall growing plant quite different from Pitman. It yielded 6097 kg of dry matter compared with 1354 kg/ha for Pitman. So it is really one to watch.

In conclusion, in my view serradella has a very real role to play, by utilizing those sandy lighter acid soils, (of which most of us have some acres) to lift overall farm production.

EDITORS NOTE

A varietal selection programme, co-ordinated by Tim Drew (Agricultural Research Centre, Trangie) has been running for several years in NSW. The West Australian cultivar, Tauro, flowers two weeks earlier than Pitman and is more reliable in central and northern areas of NSW where moisture may become limiting in the spring. Commercial supplies of Tauro were available for 1988 sowings. Avila, registered in NSW in 1987, flowers at a similar time to Pitman but generally has produced higher dry matter yields than Pitman. Avila is adapted to the southern and cooler altitude environments east of the 600 mm rainfall isohyet. Another cultivar, Elgara, has just been registered in NSW. Elgara flowers about one week earlier than Tauro and has proved outstanding on sandy and acid soils in central and northern areas of NSW (ie. the zone from Narrabri to Condobolin). Commercial supplies of seed of Avila and Elgara should become available over the next two years. Queensland Department of Primary Industries is proceeding with the release of another cultivar, Madeira, which flowers about 10 days earlier than Elgara and which could extend the adaptation of serradella further west in NSW.