

Plantain Power

Packed with nutrients and highly palatable, narrowleaf plantain has been described as “lollies for cows.” (Soledad Navarrete, post-doctoral fellow at Massey University, New Zealand)

Plantago is a genus of about 200 species of flowering plants in the family Plantaginaceae, commonly called plantains. Members of this extremely useful and versatile genus hail from all over the globe including Australia, occupying a wide range of habitats from wetlands and bogs to alpine and coastal areas.

The one we most commonly see here in Victoria is *Plantago lanceolata* which is native to Eurasia, but grows as a weed all over Australia. Also known by the common names ribwort plantain, narrowleaf plantain, English plantain, ribleaf and lamb's tongue, it is from this species that varieties have been bred as a pasture crop.



According to Agriculture Victoria: “There are about 20 species of Plantain found in Victoria, including both Australian native and introduced exotics. Of these, only Buck’s-horn plantain (*Plantago coronopus*) appears to tolerate saline conditions, although some, such as Greater plantain (*P. major*) may be able to survive in short-term brackish waters.”

Sow what when

Our Resilient Farms Agronomist, Jade Killoran, says: “Plantain is a deep tap-rooted Spring/Summer active herb with a penchant for scavenging nutrients, especially calcium. Like chicory it has been shown to have anthelmintic properties. It grows well in spring and summer in high rainfall zones but is a little more active than chicory in winter and less active than chicory in summer. It is quite drought tolerant and handles low fertility and wet conditions reasonably well. It is best sown in a mix in a clean paddock, as it is slow to establish and also doesn't like herbicides so weed infestation and subsequent chemical control is limited. Ryegrass may be too competitive to allow plantain to establish, so it is best sown at very low rates into annual multispecies mixes, or at higher rates into perennial grass (fescue, cocksfoot, phalaris) and clover mixes where it is expected to be a significant part of the pasture mix. Sowing plantain into perennial ryegrass mixes often results in lower establishment. I sow plantain into annual mixes at .25 to .5/kg or into perennial mixes at 2 kg/ha.”

Plantago lanceolata



The Wonders of “weeds”

According to aricology.co.uk: “Plantain can yield 8-9 tonnes DM per hectare. The growth of plantain is similar to perennial ryegrass, with growth rates and yields being much greater in the summer. Plantain is very palatable; sheep and cattle will selectively graze it, therefore rotational grazing is recommended.”

Dairy Australia also provides some fascinating insights on [how plantain helps milk yield](#) and milk fever thanks to trials at the Tasmanian Institute of Agriculture.

War on Worms (and snakes!)

Plantain is known to have the capacity to reduce the effects of intestinal worms in cattle such as *Haemonchus placei* (barber's pole worm, large stomach worm, wire worm), *Ostertagia ostertagi* (medium or brown stomach worm) and hairworms.

Plantain is also used in herbal remedies for humans with intestinal worms. Plantago species have been used since prehistoric times as herbal remedies. It has even been claimed to cure snakebite and was used by the Dakota Indian tribe of North America for this.

Eases emissions and lessens leaching

Plantain has been shown to reduce nitrous oxide emissions in cattle urine.

One seed supplier which sells a plantain variety called Ecotain® claims that planting their product can reduce N leaching from the urine patch by up to 89% in both cattle and sheep. They also state that: “Ecotain® pastures offer great animal performance potential for sheep, beef and dairy farmers, particularly in winter and spring, as well as supporting a high level of animal health, reduced incidence of dags in sheep and good micronutrient supply. Pure stands of Ecotain® can be used during lambing to increase lamb and ewe weights at weaning.”

In a research project which took place in New Zealand, Soledad Navarrete, a post-doctoral fellow at Massey University, says the first tests, which took place in March and April 2017, “suggested plantain had the potential to reduce nitrate leaching by 90% through a lower concentration of nitrate in a cow's urine.”

Subsequent testing between September 2017 and June this year also showed significant gains resulting in the 66% drop.

Navarrete put the variability between trials down to the fact the first tests were carried out before winter in 2017 - a time when nitrate leaching is high - while the second trial was undertaken over a longer period.



When leaching removes too much nitrate content from the soil, the pH drops too far and the soil become over-acidic. Soil acidification leads to numerous negative consequences, including alteration to the types of soil microbes, surface water contamination and declining populations of earthworms.

Methane minimiser?

A scientific article written by the plant sciences department at Wageningen University in Holland states that including herbs like plantain in pastures has been shown to not only reduce nitrate leaching, but to reduce methane emissions by livestock.

According to Wikipedia, this is because “the natural compounds present (e.g. condensed tannins; ~14 g/kg DM), affect the acetate-propionate ratio in the rumen, which is a primary mechanism by which methanogenesis is restricted. Currently this is not a viable option in any significant scale due to agronomic difficulties.”

Fun Plantain Facts

Banana plantain – The word “plantain” is also a type of banana, more starchy and with less sugar than bananas and mostly used in savoury dishes. This plant is in no way related to the plantains we feed our cattle. Some broad-leaved species of *Plantago* are said to be used in salads and green sauce, but I reckon the banana variety would be much more appealing for people.

Australian plantain - *Plantago debilis* is native to Australia (pictured right), occurring in every state and territory. It favours moist sandy soils. Common names include shade plantain and weak plantain. The Noongar people of south west Western Australia heated and crushed the leaves to give a liquid that was used to make poultices for sprains, ulcers, and boils.

Doctor plantain – Plantain can be used for coughs, wounds, inflamed skin or dermatitis, and insect bites. The herb has been used as an astringent, anti-toxic, antimicrobial, anti-inflammatory, anti-histamine, as well as a demulcent, expectorant, styptic and diuretic. Externally, it can be used as for insect bites, poison-ivy rashes, minor sores, and boils. Internally, it is used for coughs and bronchitis, as a tea and tincture.



Plantago debilis



Psyllium comes from some *Plantago* species such as *Plantago indica* and *Plantago ovata*. The seeds are medicinally cultivated for use as a laxative for constipation and are also used to treat irritable bowel syndrome (IBS) and diarrhea by extracting the mucilage from the seed coat. The mucilage from the seeds has also been reported to lower the risk of coronary heart disease.



Plantago indica

Name of the Game (answer to last week's teaser) - In Edinburgh, Scotland, a game using plantains was called 'The 1 o'clock gun' after the gun that fires every day from Edinburgh Castle. Writer Sean Michael Wilson notes that: "When I was a kid in Edinburgh we used it for a cute wee game called 'The 1 o'clock gun' - we twisted the stalk around into a kind of noose, quickly pulled it (with the left hand pulling back sharply and the right hand moving forward) and then the head of the stalk would go shooting off. Piitttt!! We used to see how far we could get it to go - great fun." In the West Country of England the same game was called 'cannonballs'.

The game I recall, in 1970s rural central Scotland, was called Soldiers' Heads and was played like "conkers" which uses chestnuts, the aim being to knock off the head of your opponent's stalk using your stalk with a fast downward thrust. In England this game was called 'Bishops' and here in rural Victoria, Andrew Allsop, the main supplier of seed for the Climate Resilient Farms Project, remembers it as Lamb's Tongue.

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