

POISONOUS PLANTS IN NEW ZEALAND

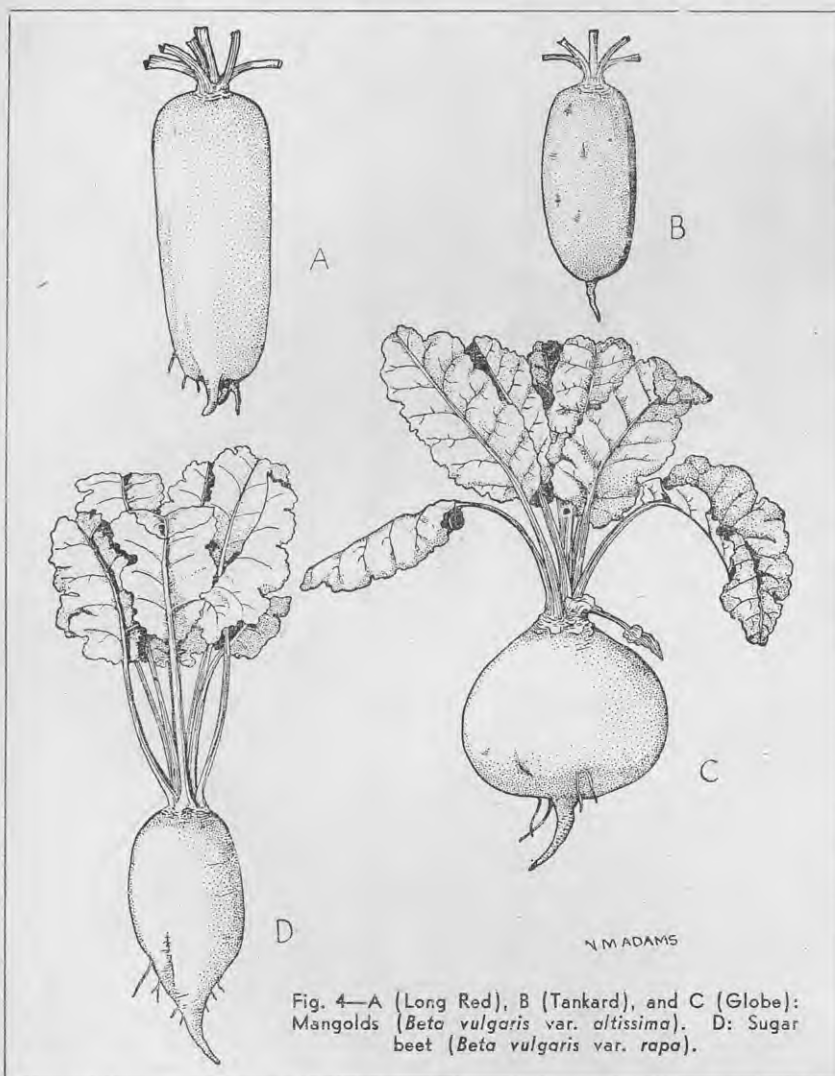


Fig. 4—A (Long Red), B (Tankard), and C (Globe): Mangolds (*Beta vulgaris* var. *altissima*). D: Sugar beet (*Beta vulgaris* var. *rapa*).

Symptoms of poisoning: The cases referred to show staggering as the first noticeable ante-mortem symptom. If the poisoning is serious, the animals go down and in most cases cannot get up. There is frequently a discharge from the nose. Muscular spasms are common, breathing is abnormal, the animal finally becomes comatose, and unless it is treated death follows. Post-mortem examination shows slight inflammation.

Poisonous principle: The toxin is oxalic acid and soluble oxalates.

Sheep Sorrel. *Rumex acetosella* L. (Fig. 3, A to E)

Botanical description: **Habit**—Herb with stem up to 15in. tall; united stipules fringed with fine teeth. **Leaves**—Spear shaped, lanceolate to linear. **Flowers**—Unisexual; tepals ovate, hardly enlarged in fruit, appressed to fruit. (Eurasia.)

Habitat: Cultivated and waste land, open pastures, and low tussock grass-land.

Distribution: Abundant throughout both islands.

General: Some authors have claimed that the seeds of sheep sorrel are poisonous to horses and sheep. However, in view of the abundance of this species in New Zealand and the apparent absence of known stock losses caused by it, it is considered that poisonings are not to be expected.

Chenopodiaceae

Sugar Beet. *Beta vulgaris* L. var. *altissima* D.C. (Fig. 4, D)

Mangold. *Mangelwurzel.* *Beta vulgaris* L. var. *rapa* Dum. (Fig. 4, A to C)

Botanical description: **Habit**—Annual, glabrous, thick-rooted plants; roots of various colours. **Leaves**—Large, alternate, entire. **Flowers**—Perfect, becoming hardened in fruit. Seeds cohere into a seed ball. (Europe.)

Habitat and distribution: Cultivated crops.

General, mangolds: Mangold poisoning is not common in New Zealand, though several cases have been reported. A serious loss occurred on a piggery in Otago where 200 pigs died

after being fed cooked, freshly pulled mangolds. It was shown later that clamped mangolds cooked at a temperature below boiling point or at boiling point for too short a time could also be poisonous. Cooking mangold roots for 2 hours or more at boiling point makes them non-toxic. The suitability of raw, fresh mangolds was not considered in this work, but it is accepted, possibly erroneously, that frosted mangolds are poisonous to stock. In New Zealand cows have been poisoned by eating mangolds.

General, sugar beet: Recorded cases show that sugar-beet pulp can cause poisonings in cattle. This type of poisoning is not known in New Zealand, but should be considered, as sugar beet is being grown to an increasing extent in the Dominion. Cases are on record of fresh sugar-beet leaves being poisonous to cattle and pigs in Austria and Sweden, where the leaves are commonly fed. Some authors believe that small quantities of leaves will not produce any ill effects in stock, but that larger amounts may cause death. Several authors have advocated the feeding of sugar-beet tops to stock as an accessory fodder. The presence of oxalic acid in the leaves makes the plant a potential danger to stock.

Symptoms of mangold poisoning:
Ante-mortem—In the pig poisonings observed death occurred rapidly, but in a number of cases symptoms of pain were shown. Muscular weakness was followed by laboured respiration, and death ensued from asphyxiation, usually preceded by convulsions. Vomiting occurred in a number of cases.
Post-mortem—External signs were a cyanotic appearance of visible mucous membranes and a marked paleness of the skin in the region of the snout and coronets. The viscera showed marked venous dilation of visible mesenteric blood vessels. The liver and kidneys were dark red and congested, the stomach and small intestine had an inflamed appearance, and the lungs were abnormally red, showing marked venous congestion. The blood was a chocolate colour, resulting from the change of haemoglobin to methaemoglobin.

Symptoms of sugar-beet poisoning:
Roots—Staggers and bloat are the symptoms recorded in bullocks poisoned. Impaction of the stomach and choking is to be expected in cattle and horses. **Leaves**—The sequence of symptoms in pigs is rapid, appearing soon after a meal of leaves has been finished. Apathy, unwillingness to rise, swaying gait, weakness in hind-quarters, muscular tremors, spasms, pale grey skin and snout, weak and accelerated heart action, retching, vomiting, and extreme dyspnoea precede death. Cows show depression and diarrhoea, and death occurs if the feeding of leaves is continued. Post-mortem examination reveals dark brown to black, tar-like blood; coagulation of the blood is retarded.

Poisonous principles of mangolds: Excessive amounts of nitrites are present in the roots after they have been cooked at too low a temperature and then allowed to cool.

Poisonous principles of sugar beet:
Roots—The fermentation of the sugar present in the roots is presumed to cause the symptoms of bloat. **Leaves**—The toxin in the leaves is oxalic acid and oxalates.