

PASTURE LEGUMES IDENTIFIED

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INTRODUCTION

Most plant species sown for pastures belong to one of two plant groups; the legumes and the grasses. Legumes are plants with flowers like the sweet pea and produce their seeds in pods. Compared to grasses which have long slender leaves, legumes have compound leaves with three or more broad, rounded leaflets. Most legumes have tap roots which are able to obtain water from deeper in the soil than the roots of grasses.

Legumes are highly valued because they are rich in protein and yield well without being fertilized with nitrogen. This is because legumes are able to form a mutually beneficial relationship with

Rhizobia bacteria. In this association, the bacteria, which live in nodules or swellings on the legume roots, are able to fix atmospheric nitrogen and make it available to their host plant.

Several legume species are used in Ontario. This Factsheet is a guide to identifying the common, the not so-common and the wild legume species that can contribute to the productivity and feed value of pastures. Agronomic information for most of these species can be found in OMAF Publication 296. *Field Crop Recommendations*.

BIRDSFOOT TREFOIL



Distinguishing Features Compound leaf with 5 leaflets, the lower 2 leaflets right at the leaf stem junction, and the clusters of bright yellow to reddish orange flowers.

- Stems** –fine stems, 60 to 90 cm in length, often very branched
–vary from being strong and erect to weak and prostrate
- Leaves** –each leaf has 5 leaflets, 2 of which are very close to the stem and separated from the other 3 by a definite stalk
- Flowers** –bright yellow to orange-yellow
–borne in clusters of 2 to 8 at the end of the flower stalk
- Seedpods** –2 to 4 cm long, round and slender
–5 to 6 pods are usually attached at the end of the flower stalk, looking like a bird's foot
–pods turn from green to dark brown at maturity and normally contain 10 to 15 dark brown seeds
- Roots** –1 deep tap root with many side-branching roots in the upper 30 to 60 cm of soil

WHITE CLOVER



- Stems** –smooth, solid stems that creep on the ground and have erect or upward-slanting branches
- Leaves** –each leaf has 3 rounded, stalkless leaflets
–underside is shiny
–edges of the leaflets have a few shallow teeth, these being most noticeable halfway between the tip and base of the leaflet
–sometimes there is a V-shaped whitish mark on the upper surface of each leaflet
- Flowers** –usually all white but sometimes tinged with pink
–form an almost spherical head
- Seedpods** –very tiny (4 mm long) and pea-like
–contain 1 to 4 heart-shaped seeds that range in colour from yellow to orange-red or brown

WHITE CLOVER

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- Roots**
- a short tap root in the seeding year (it dies before or during the second year)
 - shallow roots develop from the nodes of the creeping stems

Distinguishing Features Creeping stem, shiny underside of leaf, 3 stalkless leaflets, often a white mark on each leaflet and clusters of white flowers.

Note There are 3 types of white clover (wild white, common white or white Dutch and Ladino) used in Ontario. They look the same, but differ in size. Wild white clover is the smallest, ranging in height from 5 to 17 cm. The intermediate, common white, grows to 25 cm, while Ladino can grow to 34 cm tall.

RED CLOVER



- Stems**
- hairy and leafy
 - grow upright to a height of 15 to 42 cm
- Leaves**
- each leaf has 3 stalkless, oblong leaflets
 - V-shaped white mark on leaflets almost always present although not always distinct
 - leaflets hairy, especially on the under-surface and edges
- Flowers**
- rose purple to magenta
 - form a dense head 2.5 cm in diameter
- Seedpods**
- very tiny (1 mm long) acorn shaped pods
 - contain seed that are mitten shaped and vary in colour from yellow to deep purple
- Roots**
- weak tap root with many fibrous, side-branching roots

Distinguishing Features Marking on leaf, the hairy stems and leaves, and the flowers in a dense cluster.

Note Two types of red clover are used in Ontario, single cut and double cut. Single cut is taller and coarser than double cut red clover.

ALSIKE CLOVER



- Stems**
- smooth and slender
 - tend to be prostrate
- Leaves**
- each leaf has 3 stalkless leaflets
 - leaflets are finely serrated all around or just on the lower half
 - leaflets are deep green and hairless
- Flowers**
- white to pinkish rose
 - form a dense round head
 - flowers are borne along the length of the stem, with the youngest flowers at the top
- Seedpods**
- very tiny (less than 1 mm long) and pear-shaped
 - 1 to 2 seeds produced per pod
 - seed colour ranges from light green to green-black
- Roots**
- a tap root not as deep and more branching than red clover's

Distinguishing Features Flowers borne along the length of the stem; stem and leaves hairless.

ALFALFA



Distinguishing Features Leafiness of the plant, leaf shape, and the serrations on the tips of the leaflets, and the stalk of the central leaflet longer than the other 2.

- Stems**
 - slender, either solid or hollow
 - grow to a height of 60 to 100 cm
- Leaves**
 - each leaf has 3 leaflets that are 2 to 3 times longer than wide and serrated at the tips
 - leaflets vary in shape from long and narrow to oval
 - stalk of central leaflet distinctly longer than those of the 2 lateral leaflets
- Flowers**
 - usually purple, or blue, sometimes yellow or white
 - 10-20 flowers in a cluster at the end of the flower stalk
- Seedpods**
 - spiral or sickle shaped
 - seed is kidney shaped
 - fresh seed is yellow to greenish yellow
- Roots**
 - 4 types: tap root, branch root, rhizomatous or creeping

SWEET CLOVER



- Stems**
 - very branched and spreading
 - grow 150 to 200 cm in height
- Leaves**
 - each leaf has 3 oblong leaflets that are serrated around the edges
- Flowers**
 - yellow or white
 - small and very numerous in long loose flower arrangements called racemes
- Seedpods**
 - tiny, (less than 5 mm long) wrinkled and plum shaped
 - pods turn brown, dark grey or white when mature and contain 1 to 2 seeds
 - yellow seed is similar to alfalfa seed, but shorter and less kidney shaped
- Roots**
 - deep, strong tap root

Distinguishing Features Tall coarse appearance, leaflets roundish and with toothed edges, crushed stems and leaves have a distinctive sweet odor.

Note Two types of sweet clover, yellow flowering and white flowering are used. The white flowering type is deeper rooting, taller and coarser than the yellow flowering sweet clovers.

CROWNVETCH



- Stems**
 - coarse and hollow
 - grow 30 to 150 cm long and are semi-reclining
 - does not climb like a vine
 - total vertical height is about 70 cm
 - underground stems may also be produced
- Leaves**
 - compound with 5 to 25 pairs of narrow to oblong or oval leaflets
 - vetch-like but without any tendrils
- Flowers**
 - whitish-pink to purplish pink
 - borne in a cluster at the tip of a long stalk; with their arrangement resembling a crown
- Seedpods**
 - long, slim, cylindrically shaped
 - divided into 3 to 12 segments
 - each segment contains 1 rod shaped, dark brown seed 3.5 mm long and 1 mm in diameter
- Roots**
 - a deep tap root with many side branching roots

Distinguishing Features The crown shaped cluster of pinkish to purplish flowers and vetch-like leaves without tendrils.

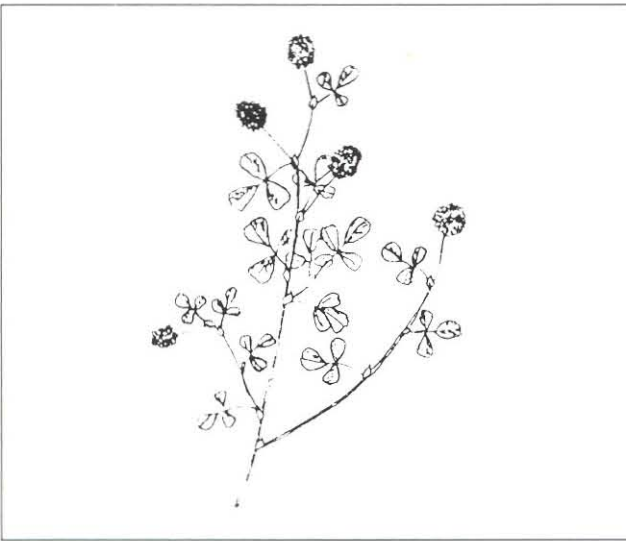
BLACK MEDICK



Distinguishing Features The leaves, and the small yellow flower clusters on stalks longer than the leaves.

- Stems**
 - slender, wiry and leafy
 - are either long (up to 80 cm) and prostrate or much shorter and erect
- Leaves**
 - each leaf has 3 small oval leaflets shallowly toothed at the tips
 - covered with fine hair, at least on undersurface
 - central leaflet has a stalk
 - leaves dull green without any white markings
- Flowers**
 - yellow
 - small, headlike clusters 1 cm in diameter on long stalks
- Seedpods**
 - black, kidney-shaped or twisted, 2-3 mm long
 - prominently ridged
- Roots**
 - very strong, thin tap root

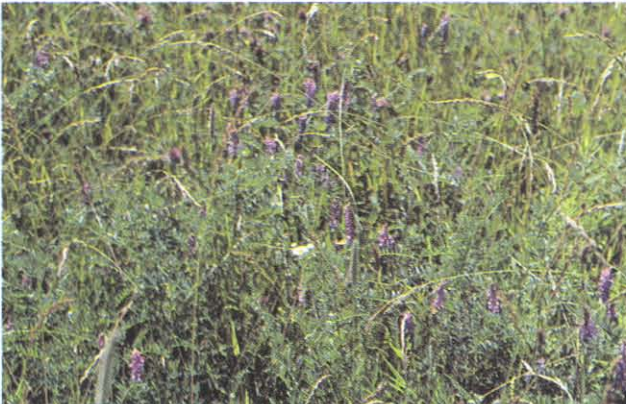
HOP CLOVER



Distinguishing Features Annual or biennial plants with a slender tap root and branching, erect stems, leaves compound with 3 wedge-shaped or oval leaflets toothed along the outer edge, numerous yellow flowers in dense egg-shaped clusters which turn brown at maturity and hide their very small seedpods.

- Stems**
 - finely hairy and very branched
 - grow erect from 10 to 40 cm in height
- Leaves**
 - each leaf has 3 leaflets
 - the tiny stalks of all 3 leaflets are of equal length in low hop clover, but in large hop clover and small hop clover the stalk of the central leaflet is distinctly longer than those on the other 2 leaflets
 - each leaflet is somewhat triangular or wedge-shaped with several teeth along the broad end of the leaflet
- Flowers**
 - yellow
 - small, 20 to 30 flowers form an egg-shaped cluster 0.5-1.5 cm long
 - when the flowers wither they fold down, turn brown and resemble dried hops
- Seedpods**
 - very small, often remaining inside the brownish withered flower
- Roots**
 - slender tap root with side branching roots

TUFTED VETCH



Distinguishing Features Compound leaves with 5 to 12 pairs of leaflets and branching tendrils, and the flowers clustered on one side of a long stalk, spreading underground rootstocks.

- Stems**
 - long (40 cm to 2 m) wiry stems that trail on the ground or twine around other plants
- Leaves**
 - each leaf has 5 to 12 pairs of bristle-tipped leaflets and ending with 1, 2, or 3 tendrils
- Flowers**
 - bluish-purple
 - 30 or more of the 1 cm long flowers are commonly crowded together on one side of a long bare stalk
- Seedpods**
 - pea-like, 2 to 3 cm long, slightly flattened and light brown in colour
 - seeds are round and are various colours: grey-green, brown black or flecked
- Roots**
 - tap root with side branching roots, spreading underground rootstocks