SOLUTIONS IN THE LAND

CROP PROFILE

SAINFORN

Onobrychis viciifolia
Member of the Fabaceae family

History

Sainfoin was introduced to England from France in 1652 and became widely grown in areas such as the Cotswolds, Salisbury Plain, and parts of East Anglia. Valued as a forage crop for livestock, it played an essential role in traditional crop rotations, with some tenancy agreements requiring its cultivation. By 1800, it accounted for around 10% of Oxfordshire's farmland.

Climate Needs

Sainfoin is best adapted to sites receiving at least 14 inches of mean annual precipitation and can survive on 12–18 inches/year. While regular rainfall may suffice, irrigation can increase yields, particularly during establishment.

Risk

Frequent or severe grazing, particularly during the vegetative stage, can quickly thin stands. To maintain persistence, sainfoin should be allowed to reseed naturally at least once every few years, and a fall rest period is necessary to support stand longevity. It is not considered weedy or invasive, but may spread under ideal conditions via seed.

Sainfoin Description

Sainfoin is a deep-rooted perennial legume with a branching root crown, making it suited to dry, thin, alkaline soils. Its roots penetrate deeply into soil and rock; making it drought-resistant. The plant typically grows up to 3ft with a hollow, soft stem. Leaves are odd-pinnately compound with multiple oblong leaflets. Sainfoin produces showy pink, white, or purple flowers arranged in compact racemes, flowering indeterminately from the base upward.

Soil

Sainfoin grows best on well-drained, stony brash or chalk soils and performs poorly on wet ground. It is well adapted to deep soils of at least 18 inches and requires alkaline conditions, performing best at a pH of 6.6 to 8.0.

Seeding

Sainfoin is best sown in spring when soils are warm, around 42°F, although fall planting is possible if plants have time to establish before a hard frost. Heavy residue cover should be avoided. The "seed" used is actually a pod containing a single large seed, with approximately 28,000 seeds/lb. Seeds should be planted shallowly, at ¼ to ¾ inch depth. Sainfoin must be inoculated with rhizobium specific for sainfoin just before seeding to ensure nitrogen fixation. Seeding rates depend on the intended use: Pure stands for pasture: 25–34 lb/acre (30–40 kg/ha) with 7-inch row spacing Component of a mix or rangeland: 2–5 lb/acre Sainfoin should not be interplanted with aggressive grasses; if intercropping, consider alternate-row planting to reduce competition.

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Weed Control

Sainfoin is a poor competitor during establishment due to slow early growth, making weed control critical in the first year. If weed density is high, harvesting to remove weed biomass may be necessary. Once established, sainfoin can tolerate light competition, and grasses can be selectively controlled using herbicides. Small weeds around and between plants can also be managed mechanically by mowing or trimming.

Pest & Disease Managment

Sainfoin is naturally resistant to many pests and diseases, including alfalfa weevil. However, long-term stand survival can be limited in irrigated or wet conditions due to root and crown rots.

Fertility

Sainfoin requires no nitrogen or phosphorus fertilization, but potassium levels should be maintained at ADAS Index 2 to safeguard yields.

Highlights

Sainfoin is a deep-rooted, perennial legume valued for its drought tolerance, winter hardiness, and suitability to alkaline, well-drained soils. Its natural condensed tannins improve protein utilization in livestock, reducing bloat risk and enhancing overall forage efficiency. Sainfoin requires little to no nitrogen fertilization, supports soil health through nitrogen fixation, and provides high-quality forage as hay, haylage, or pasture.

Harvest

It can be cut for silage in early June or harvested as hay at early flowering. Typically, only one cut per season is recommended, at the half- to full-bloom stage. Avoid harvesting 4–6 weeks before a killing frost to allow plants to build carbohydrate reserves for winter survival. When harvesting hay, handle the crop gently to minimize leaf loss—move the crop while dew is present, and consider using older equipment with gentler action. Typical yields from established stands include:

Hay: 100–150 small bales (≈30–35 kg) per acre with a grass mixture

Haylage: 15 large bales (≈210 kg) per acre from pure stands

For seed production, the first crop can be harvested in the second year after establishment. Seed yields vary widely: up to 1,000 lb/acre under irrigation, but often less than 200 lb/acre under dryland conditions. Seeds should be harvested when moisture is below 40% or when they begin to shatter. Due to successive maturation on the same raceme, seed may be harvested multiple times, typically by swathing followed by combining after 2–5 days of drying.

Cleaning & Storage

After harvest, sainfoin seed should be cleaned to remove pods, stems, and other debris to ensure high-quality seed and reduce disease risk. Seeds can be cleaned using standard seed-cleaning equipment, taking care to avoid excessive handling that could damage the large, single-seeded pods. Cleaned seed should be thoroughly dried to a moisture content below 12% before storage to prevent mold growth or spoilage. Store seed in a cool, dry, well-ventilated location, preferably in airtight containers or sealed bags, to protect it from insects and rodents.

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Rating any crop's production opportunity or risk is subjective and depends on the region where the crop is to be raised. Genetic advancement for pathogen tolerance and adverse weather condition has been more significant for popular, high seed sales crops such as corn and soybeans. The below table lists some of the issues of producing specific crops and helps guide your process of selecting your cropping choice.

Average rating: 3.26

Issue	1	2	3	4	5
Seed availability			X		
Scouting requirements				X	
Drought tolerance					X
Waterlogged soil tolerance		X			
Disease pressure				X	
Wildlife concerns		X			
Yield swings			X		
Harvest ability				X	
Field loss				X	
Market demand			X		
Soil regeneration			X		
Residue value					X
Storability				X	
Benefit for following crop			X		

1- very low 2- low 3- average 4- moderately high 5- very high

Seed availability – Price, lead time, and required lot size are consideration for these issues
Scouting requirements – What frequency does someone need to look at the crop?
Drought tolerance – Rainfall patterns are requiring crops go longer between rainfall events.
Waterlogged soil tolerance – Rainfall events tend to produce higher volumes than historical averages.
Disease pressure – Plant stress has increased with the rise of daytime temperatures
Wildlife concerns – Deer, rabbits, voles, resident geese, and others can destroy fragile crops.
Yield swings – How predictable will the income be when this crop goes to market?
Harvest ability – Do we need plans B & C if adverse conditions affect the harvest?
Field loss – How much will be left in the field and can we monetize field loss?
Market demand – Does this crop have an elastic delivery window and are there timing penalties?
Profitability – Is there potential for higher margins needed for a shrinking land base?
Soil regeneration – Does this crop support the next crop?
Residue value – What remains after the target crop? Can we monetize the residue?
Storability – How long can we hold this crop? Will quality be challenging to maintain?