

VIDEOS

Weed control



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Weed control

Weeds compete with the peanut crop for moisture, nutrients and light. They cause major problems at harvest time, and reduce the quality of the crop.

Peanuts do not grow very tall and consequently do not compete very well with weeds. Early control of weeds during the crop's first 6 weeks is critical. Yields will be slashed if weeds are allowed to compete unchecked at this stage.

The presence of weeds also causes losses during digging, threshing and drying—entangling machinery, knocking peanuts off the bush, and leading to mould damage by causing uneven drying in the windrow.

Weeds can also restrict airflow during the drying process, creating pockets of moisture, which have the potential to cause aflatoxin.

A combination of cultivation, herbicides and hand-chipping is usually required to control weeds.¹

Many herbicides are registered for use in peanuts. Correct use of herbicides has proved relatively safe and very effective against a diversity of both grass and broadleaf weeds. However, growers should avoid spraying broadleaf herbicides during the main flowering period if possible.

Mechanical cultivation is still used in many areas; however, growers need to be careful of root pruning and especially of throwing dirt up against the plant stem during cultivation. These activities have been shown to exacerbate several soil-borne diseases, such as white mould.²

Control of weeds is one of the major factors involved in successfully growing peanuts. Because the peanut crop grows underground, weeds make digging and threshing operations very difficult, resulting in high losses. Peanut plants themselves can also be a problem weed when growing in fallows and other crops.

A weed management program in peanuts requires the timely use of cultural, mechanical and chemical practices (Photo 1).

Weed management is a whole-of-farm, whole-of-year concern. Weeds should never be allowed to seed in fallows, peanut crops or rotation crops. Preventing weeds from seeding will reduce weed populations in the long-term and reduce the risk of weeds developing resistance to herbicides.

Weeds reduce the effectiveness of fungicide applications because some of the fungicide falls on the weed instead of on the peanut foliage.



Photo 1: The weed on the left is at the 2-leaf stage and requires less herbicide to control than the more mature weed on the right.

Weed control in the crop starts with the seedbed preparation. Do not plant peanuts unless weeds are under control at the time of planting.

¹ PCA. Soil preparation. Peanut Company of Australia.

² G Wright, L Wieck, P Harden (2015) Peanut production guide, August 2015. Peanut Company of Australia, <http://www.pca.com.au/wp-content/uploads/2016/11/PWH-Peanut-Production-Guide-2015.pdf>

Studies of weeds in many crops show that weeds start to compete with the crop as soon as they have germinated. For peanut crops, it is especially important to have weeds under control early, because the peanut plants do not compete well with weeds, particularly in the first 6 weeks of the crop cycle.

Peanuts usually maintain yield potential if the grower eradicates weeds within the first 3–4 weeks after planting and the peanut crop remains weed-free for the rest of the season. Yields will generally suffer if weeds remain in the crop during the 4–8 weeks after planting.

Some weeds can only be controlled with herbicides that also have an adverse effect on peanuts. These weeds must be controlled before planting peanuts.

Weeds in peanuts are a major problem at harvest time. Losses occur during digging, threshing and drying. Some peanut farmers have lost fingers trying to free a peanut puller choked with weeds.³

6.1 Digging

During digging, the peanut plant is removed from the ground with machines such as a digger-inverter, to place the peanuts upside-down for drying.

Weeds become entangled with the peanut crop, causing peanuts to be lost from the bush and making inversion difficult. They also cause uneven drying and more dirt to be retained in the windrow. Grasses with extensive root systems or creeping growth habits, such as couch grass and crowsfoot grass, can cause major problems.

Digging is affected by the drag or baulking, which occurs over the blades when trying to cut through these grasses.

Diggers require coultter blades to break up bellvine and convolvulus vine, allowing them to flow through the blade section. Despite the coultters, the vine will drag over the cutter section and cause poor inversion. The windrow will also be far less open and considerable mould damage can occur to peanuts in a poorly inverted, tight windrow if it rains.

Other weeds with strong taproots, such as Sida, drag and cause the bunching of peanuts and soil in the inverter section of the digger.

Large broadleaf weeds with thick stems, such as thornapple, cause poor inversion and result in dragging and choking in the cutter section.

Growers often use a rotary hoe or discs to loosen the soil on the headlands, to allow the cutter blades to penetrate before reaching the peanut plants. This practice also helps to control weeds that may otherwise invade the crop area.⁴

6.2 Threshing

Weeds also affect the threshing operation. Binding weeds such as convolvulus and bellvine produce large volumes of leaf matter, which the harvester must separate from the pods in the sieving process.

Taprooted and thick-stemmed weeds become caught in sieves, further reducing the capacity and efficiency of the harvester.

Soil left on weed roots reduces the separation efficiency, resulting in higher levels of leaf and trash remaining in the harvested product. This contamination reduces the crop value.⁵

3 PCA/DPIF (2007) Managing weeds. Peanut Company of Australia/Department of Primary Industries and Fisheries Queensland, http://www.pca.com.au/bmp/pdfs/4c_weed.pdf

4 PCA/DPIF (2007) Managing weeds. Peanut Company of Australia/Department of Primary Industries and Fisheries Queensland, http://www.pca.com.au/bmp/pdfs/4c_weed.pdf

5 PCA/DPIF (2007) Managing weeds. Peanut Company of Australia/Department of Primary Industries and Fisheries Queensland, http://www.pca.com.au/bmp/pdfs/4c_weed.pdf

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6.3 Drying

Efficient curing relies on a clean peanut sample. Weeds may cause high levels of extraneous matter (leaf material, sticks and dirt), which reduces air-flow through the peanuts. This causes pockets of moisture to remain and can result in mould and aflatoxin development.

The fruit of wild gooseberries, wild cucumber and wild gherkins can also cause curing problems. The pod or fruit is a storehouse of moisture and it will not dry as quickly as the peanuts. This can lead to the development of mould and, potentially, aflatoxin, despite correct curing practices. Pre-cleaning before curing will help, but it is not always possible to remove the fruit completely.⁶

6.4 Management options

A combination of cultivation and herbicides is usually needed to control weeds in peanuts, although in irrigated crops, weeds are usually controlled using only herbicides.

6.4.1 Cultivation

In dryland crops, growers may use two inter-row cultivations to control weeds, to loosen the soil for the pegs to penetrate, and to make cutting easier. In very loose, friable soils, inter-row cultivation may not be necessary. After heavy rain or prolonged wet periods or on soils that crust, an inter-row cultivation to aerate the soil may benefit the crop even if very few weeds are present.

Cultivators should be set so to avoid throwing soil onto the peanut plant; this can cause damage and disease. Move soil up to, but not onto the plant. If a late cultivation is unavoidable, do not disturb pegs that have entered the soil. Avoid late inter-row cultivations in situations where *Sclerotinia* blight is a known problem.

Hand-chipping can still be very cost-effective to control 'escaped' weeds before harvesting the crop.

6.4.2 Herbicides

The following information regarding herbicides and their use relates to Queensland registrations. Check the label for use in other states.

Grass weeds

Grasses are usually controlled before planting by using an incorporated herbicide such as trifluralin or pendimethalin. Imazethapyr (e.g. Spinnaker®) or imazapic (e.g. Flame®) applied post-emergence can give good suppression of nutgrass.

S-Metolachlor (Dual®) applied post-plant pre-emergence controls some grasses.

Fluazifop-p (e.g. Fusilade®), sethoxydim (Sertin®), quizalofop-p-ethyl (e.g. Targa®) and haloxyfop (e.g. Verdict™) will control grass 'escapes' after crop emergence and are also effective on Johnson grass (*Sorghum halepense*) and volunteer sugarcane.

Paraquat will control only very small grasses.

Glyphosate provides useful fallow weed control.

Broadleaf weeds

Bentazon (Basagran®), acifluorfen (Blazer®), 2,4-DB (Buttress®), paraquat, imazapic (e.g. Flame®) and imazethapyr (e.g. Spinnaker®) are the main controls available for broadleaf weeds.

⁶ PCA/DPIF (2007) Managing weeds. Peanut Company of Australia/Department of Primary Industries and Fisheries Queensland, http://www.pca.com.au/bmp/pdfs/4c_weed.pdf

Basagran® will control many broadleaf weeds; however, it will not control wild gooseberry or Sesbania. Use Blazer® if these weeds are present. Using Basagran® or Blazer® under conditions of high temperature and low humidity may result in poor weed control. Spraying may need to cease by 9 a.m. to 10 a.m. Even irrigated crops can have stressed weeds in the middle of the day depending on the evaporative demand on that day.

Paraquat gives cheap, effective control of several common weeds. It can scorch peanut leaves; however, they do recover rapidly. The peanut crop should be sprayed before the 7–8-leaf stage. Good coverage is essential. Unlike Basagran® and Blazer®, paraquat will control stressed weeds, but usually, they must be younger than the 4-leaf stage. Many growers mix Basagran® with paraquat to reduce the burn on the peanuts that can result from using paraquat on its own. This mix will also reduce control of legume weeds.

Dual® is sometimes banded over the row at planting to control *Commelina benghalensis*. Unlike trifluralin, Dual® does not require mechanical incorporation, but it does need rain or irrigation within 10 days of application.

Prometryn provides good control of many weeds in irrigated peanuts. Its cost and the need for moisture make it unsuitable for dryland peanuts, except in high-rainfall areas. Some damage to peanuts has occurred where a tank mix of Dual® and prometryn was used on heavy soils. Growers should consult their peanut agronomist before applying prometryn.

Rope wick weeders with glyphosate are used to control large broadleaf weeds, Johnson grass and volunteer maize and sorghum.

Weed peanuts

Volunteer peanut plants growing in other crops and in the fallow between crops are very difficult to control.

Many herbicides and combinations of herbicides will severely distort peanuts, but may not reliably kill them. Research at Kingaroy has identified several products that will control volunteer peanuts, but they are not yet registered.

Fallow sprays of glyphosate at up to 2 L/ha and Spray.Seed® (paraquat + diquat) have not killed all volunteer peanuts even when used in combination with other herbicides such as 2,4-D amine, dicamba and atrazine.

Herbicides used in rotation crops of sorghum and maize do not always give reliable control of volunteer peanuts. Combinations of atrazine and Starane™ (fluroxypyr) have proven the most effective. Contact your local agronomist to find out the latest information on controlling volunteer peanuts.

For conservation cropping fallow management, in fallow paddocks use glyphosate, 2,4-D amine, dicamba, atrazine and Starane™ to control grasses, broadleaf and woody weeds.