whats up...

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Pursehouse Rural Newsletter

Seed Persistence of Key Northern Region Weeds

Take Home Message

By keeping weed seeds near the soil surface, effective management of emerged seedlings can result in major depletion of the seed-bank within a short period for annual grasses and some broadleaf weeds, such as common sowthistle. However, it is particularly important to prevent seed production on all weeds with a hard seed coat, such as turnip weed, bladder ketmia and climbing buchwheat, as a substantial portion of these seeds can persist for long period in the soil seed-bank.

Table 1: Persistence of 5 weed species remaining after 4 years of burial in a disturbed soil at 0-8cm depth in duplicated Experiment I

Weed	Persistence (% of seed sown)	
	Experiment I.A	Experiment I.B
Liverseed Grass	0	0
Paradoxa Grass	0	0
Wild Oat	0	<0.1
Turnip Weed	5	11
Climbing Buckwheat	6	5

Table 2: Persistence of 5 weed species remaining after 4 years of burial in a disturbed soil at 0-8cm depth in duplicated (experiment II), with estimated persistence in italics

Weed	Depth (cm)	Persistence (%of Seed Sown)			
		1 Year	2 Years	3 Years	4 Years
Barnyard Grass	0-2	13	2	*<1*	*<0.1*
	10	40	19	*11*	*5*
Liverseed Grass	0-2	24	1	*<0.1*	*<0.1*
	10	67	21	*11*	*5*
Bladder Ketmia	0-2	71	38	*27*	*17*
	10	72	64	*47*	*37*

Table 3: Persistence of Common sowthistle (experiment III) and paradoxa grass seed (experiment IV) remaining in non-disturbed soil at different burial depths, as well as paradox grass seed in disturbed 0-10cm of soil, with estimated persistence in italics

Weed	Depth (cm)	Persistence (%of Seed Sown)			
		1 Year	2 Years	3 Years	4 Years
Common Sowthistle	0	1	<1	*<0.1*	*0*
	2	29	2	*1*	*<1*
	10	47	10	*5*	*2*
Paradoxa Grass	0	12	4	<1	*<1*
	2	31	1	<0.1	*<0.1*
	0-10	7	1	0	*<0.1*

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Conducting a Pot Test

Many residual chemicals need rainfall to break them down. Due to the lack of rainfall in recent months, there may be residual chemical at high enough levels to damage the next crop.

A simple test can be conducted to see if there is enough chemical to damage a sensitive crop.

- Take samples from several locations in the paddock, at a depth of 0-10cm.
- Air dry the sample and crush any large clods to produce even, pea-sized clods.
- Add 2 capsules (0.5g) of activated carbon (powdered charcoal) to half of the soil and mix thoroughly. The carbon inactivates the herbicide so that it acts like untreated soil.
- Partially fill 2 1L containers with soil without carbon and another 2 containers with the soil carbon mix.
- Plant the intended crop in 2 containers and a known sensitive plant in the remaining 2 containers. Lightly water.
- Place the containers in a warm place where they will receive plenty of sunlight.
- Symptoms should show up within 3-4 weeks so it is important to conduct the test well before the intended sowing date.
- If there is a difference in growth between the 2 treatments it is advisable to only sow crops tolerant to the herbicide. A good way of measuring the difference is by drying the plants then weighing them.

The following table indicates common indicator plants for different chemical groups: -

Herbicide Group	e.g.	Indicator Plants
B	Metsulfuron, Chlorsulfuron, Triasulfuron	Cotton, Sunflowers Mungbean, Chickpea, lucerne
C	Diuron, Simazine, Atrazine, Terbutryn	Oats, Canola
D	Trifluralin	Sorghum, Millet
I	Dicamba, 2,4-D, Fluroxypyr	Cotton, Tomatoes, Chickpeas Faba Beans

(Source: NSW Department of Primary Industries)

Nitrogen Budgeting

With the new winter season just around the corner, it is time to think about Nitrogen requirements for your crop. The following example gives a quick guide to calculating nitrogen requirements for the coming winter crops.

1. **Select a target yield and protein**

   Set a target yield for the season: **4.5t/ha**
   Set a target protein for the season: **12%**

2. **Estimate nitrogen harvested in grain**

   N harvested is yield (t/ha) x Protein % x 1.75 wheat (or 1.6 for barley) eg **4.5 t/ha x 12% x 1.75 = 95 kg N/ha**

3. **Nitrogen needed in soil**

   Only 50% of the soil N is put into the grain, so soil N at sowing needs to be twice the amount harvested. eg Soil N needed at sowing for target yield and protein is **95 kg/ha x 2 = 190 kg N/ha**

4. **How much Nitrogen is available?**

   How much N is available can be determined by deep soil testing to a depth of 90cm. A common soil test result would be **60kg/ha** of residual nitrogen found in the soil

5. **How much additional Nitrogen is needed?**

   This is the difference between what is needed (3) and what is available (4)
   eg Nitrogen needed for target yield and protein = 190 kg N/ha
   Estimated Nitrogen available = 60 kg N/ha
   Additional Nitrogen needed: **190 - 60= 130 kg N/ha**
   Equivalent to **283 kg/ha Urea**

Contact your local Pursehouse Rural agronomist for further information on Nitrogen based products, application and soil testing.

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Table 4: Persistence of paradoxa grass seed in duplicate experiment V, turnip weed (experiment VI) and wild oat (experiment VII) seed remaining after burial in a non-disturbed soil at 0-10cm depth, with estimated persistence in italics

Weed	Persistence (%of Seed Sown)			
	1 Year	2 Years	3 Years	4 Years
Paradoxa Grass (1)	5	<1	0	0
Paradoxa Grass (2)	4	<1	</	*<0.1*
Turnip Weed	52	36	14	7
Wild Oat	21	1	</	*<0.1*

Table 5: Persistence of fleabane remaining after 1-3 years of burial in a non-disturbed soil at different burial depths (experiment VIII), with estimated persistence after 4 years in italics

Weed	Depth (cm)	Persistence (%of Seed Sown)			
		1 Year	2 Years	3 Years	4 Years
Fleabane	0-2	5	6	1	*0.2*
	5	10	13	10	*2*
	10	15	17	8	*2*

Article by Steve Walker, Department of Primary Industries & Fisheries

March Weather Summary

visit http://www.pursehouserural.com.au/services/weather_station.html

Location	Average Temp (°C)	High Temp (°C)	Low Temp (°C)	Number of Days > 35°C	Rain mm	Average Wind Speed Km/h	High Wind Speed Km/h	Dominant Wind Direction
Cattle Lane, Willow Tree	21.2	36	4	1	75.4	11.7	62.8	S
"Murlow", Quirindi	20.8	35.2	3.5	1	58.6	7.2	56.3	SSE
"Dow Site", Breeza	22	35.6	3.2	1	56.6	8.1	53.1	SSE