



AusWest SEEDS



SPS | STEPHEN
PASTURE
SEEDS

Quality Seed

Know what you sow!

Know what you sow

Quality seed is a mid-term investment (five or more years) into your cropping or forage production enterprise. Investment in quality seed assures good germination, trueness to type (that is, it is the variety it is labelled), and it is pure (minimum contamination).

'Over-the-fence' seed has unknown germination, no assurance that it is the named variety and an unknown amount of contamination.

At AusWest and Stephen Pasture Seeds we pride ourselves on being, not just saying we are, processors and distributors of quality seed.

The economics

Seed of a new variety is not expensive:

- » One tonne of seed (minimum order) will sow 16 to 18 hectares (40-45 acres)
- » That will yield 35-40 tonne of pure seed
- » In the second year you will have enough to sow at least 500 hectares (1200 acres), or
- » Sow 10 tonne a year for three years, a great way to retain pure seed and reduce the risk of contamination (annual production with augers, groupers, air-seeders, paddocks, headers etc).

The risks with purchasing seed over-the-fence

Over-the-fence seed has no traceability, no analysis and is generally cleaned using on-farm seed grading equipment. On-farm graders are efficient, affordable and useful for grading seed to enable it to be used in a

combine or airseeder. However, due to high throughput they cannot be relied upon to effectively remove all weed seeds, especially ryegrass. Unless completely cleaned down between each seed line, seed graders can easily spread weed seeds contaminating samples between seed lots and between clients.

Seed purchased over-the-fence poses a number of serious risks, which can have serious production and long term economic impacts (Table 1).

Seed processing

Quality is the key objective when processing seed at AusWest and Stephen Pasture Seeds. It is a fine balance between quality and efficiency and takes highly skilled operators and the latest seed cleaning technology to achieve a premium result. Ultimately we must process slowly enough to maximise purity whilst maintaining throughput to be efficient and affordable. AusWest and Stephen Pasture Seeds seed processing features:

- » Traceability: from seed paddock to finished product, for all generations starting with the breeders' seed
- » Gravity table: to remove lightweight seeds
- » Laboratory analysis: to assess seed quality of harvested samples (weed seed search and germination testing) before processing, so we can cull poor seed lots and process good seed lots appropriately
- » Complete clean-down between lines of seed

Table 1: Possible risks associated with using over-the-fence traded seed which has been produced without traceability and with no quality assurance.

Risk	Production issue or cost	Impact
Incorrectly named variety	Frost due to inappropriate sowing time	Major - up to 100% crop loss; no seed build-up of chosen variety for subsequent years
	Reduced value due to varietal quality characteristics	Major - lost income due to quality down-grade on sale of grain
	Herbicide wipe-out in miss-identified herbicide tolerant crops	Major - up to 100% loss; no seed build-up of chosen variety for subsequent years
Weed contamination	New weed incursion	Major - long term; monitoring and control costs
Herbicide resistant weed contamination	Herbicide resistant weed incursion	Major - very long term; monitoring and high control costs; ongoing management constraints



Wheat establishing



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**SURESEED® PROGRAM
CERTIFICATE OF ANALYSIS**

Grower: SUPERIOR SEED COMPANY

Cultivar: Sunlamb
Species Name: Wheat / Triticum aestivum

◀ Crop type and variety

Line No: V43-17134/VI
Lab No: 414411
Line Weight: 20185 kg
(15425 kg in 188 sacks)
(4760 kg in Bulk)

◀ Line number for traceability and quantity of seed represented by this analysis

Class: S1
Crop ID: NSW 01 X
Certificate No: 120210
Issue Date: 18/04/2017

◀ Analysis and paddock identification

Labels:

A measure of contamination

PURITY - % Weight			GERMINATION - % Number							
Pure Seeds	Inert Matter	Other Seeds	First Count		Final Count		Hard Seeds	Fresh Ungerminated Seeds	Abnormal Seedlings	Dead Seeds
			Day	Normal Seedlings	Day	Normal Seedlings				
99.9	0.1	0.0	-	-	8	97	0	0	2	1

Other Seeds found in 1000.0 grams

Botanical Name	Common Name	Status	Number
Sample as analysed contains nil other seeds			

▲ Actual germination percentage

▲ Lists all 'other seeds' found in a 1 kilogram sample

Example

Industry minimum standards	Cereals	Pulses
Minimum germination (%)	85	70
Pure seed (%)	98	98

▲ Minimum standards for purity and germination. AusWest and Stephen Pasture Seeds cleans to higher standards than these, aiming for and regularly achieving purity greater than 99.5% with nil other seeds.

Other Tests

1000 seed wt: 34.4 gm

◀ Seed size 1000 seed weight

Germ Method: BP,20C

Inert Matter
Broken Seed, Chaff

◀ Lists contaminants classed as inert matter

Remarks
Treated-Vibrance & Imidacloprid.



Government of South Australia
Primary Industries and Regions SA

An Accredited I.S.T.A. Member Laboratory (AUDL01)

Manager
SEED SERVICES AUSTRALIA

The test results

All growers and seed retailers should consult the purity and germination test Certificate of Analysis prior to purchase, or at the very latest, prior to planting the seed. Each quality assured seed line (usually 30 t) is tested before and after processing. The full Certificate of Analysis (see opposite page for details) includes:

- » Variety name
- » Line number
- » Size of the seed line
- » Date tested
- » Purity (inert material and other seeds)
- » Identification of 'other seeds'
- » Germination percentage
- » Seed weight (1000 seeds)

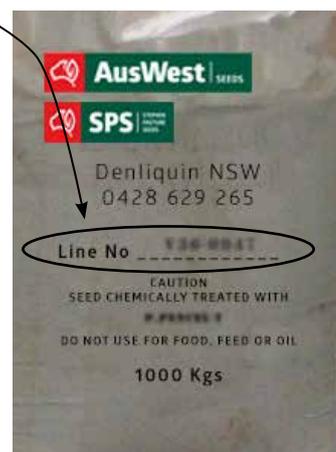
Know what you sow

It is up to the grower to know what they sow. At AusWest and Stephen Pasture Seeds purity, germination and seed size (1000 seed weight) results can easily be accessed from your office via our website. The results are posted as the seed is processed and the analysis completed. This enables purchasers of seed to view the results before ordering

and be confident in the knowledge that you are receiving high quality clean seed.

All AusWest and Stephen Pasture Seeds seed is grown and processed under strict quality assurance protocols (Seed Services SureSeed® program). This reduces the risk of contamination with weed seeds and volunteer crop seeds in the paddock, and during harvest, storage and processing; maintaining traceability throughout the process.

Each bag, bulka-bag or bulk loading of seed comes with a line number. It is your responsibility to record that number (which is stencilled on the bag) so that if you have any problems, they can be investigated and addressed promptly. If you don't keep the line number the traceability stops when the seed leaves AusWest and Stephen Pasture Seeds.



Seed box survey of Victoria

Seed samples were collected from seed boxes or groupers across Victoria over two years. Only 31% of 129 wheat samples were free of foreign seeds (Table 2).

Table 2: Proportion of wheat samples collected over two years fitting criteria of Victorian certified seed categories.

Criteria related to certified seed for a 1 kg seed sample	Wheat
Foreign seed free	31%
Less than 15 foreign seeds, no wild radish and 1 or less volunteer crop seeds	22%
Less than 15 foreign seeds, no wild radish and more than 1 volunteer crop seeds	12%
Greater than 15 foreign seeds, no wild radish and if volunteer crop seeds removed less than 15 foreign seeds	4%
Greater than 15 foreign seeds after removal of volunteer crops and/or wild radish detected	31%

A wide range of 'Other Seeds' was found in the samples (Table 3). Many samples contained volunteer crop seeds and most contained annual ryegrass and wild oats. The cereals contained more other seeds than the pulses, but they were still highly contaminated.

The results revealed a frighteningly high level of contamination in seed being sown. Growers should remember that weed seeds sown with crop seed, even

at low contamination levels, may not have an effect on the crop sown, but have potentially damaging long-term effects (crop choice and weed management options).

Table 3: Frequency of samples containing particular weed seeds in one year of the study.

Weed category	Cereal	Pulse
Annual grasses	15	5
Annual ryegrass	134	18
Wild oats	99	27
Great brome	53	10
Paradoxa grass	41	1
White iron weed (<i>Buglossoides arvensis</i>)	16	7
Thistles	12	16
Weedy brassicas	8	5
Weedy pulses	13	21
Wild radish	31	25
Hogweeds and docks (<i>Polygonum spp.</i>)	27	6
Other broadleaf species	20	16
Volunteer cereals	80	44
Volunteer pulses	25	45

Source: M. Moerkerk (2002) Proceedings 13th Australian Weeds Conference, Perth.

Don't sow herbicide resistant weeds

A survey in Western Australia looked at grain growers' seed-cleaning methods and the source of their crop seed. Seventy-eight growers provided 183 grain samples (about 10 kilograms) for analysis. Half were wheat and half were barley, lupins, pea, canola or oats.

Samples were cleaned by hand and weed seed contamination was calculated. Weed seeds were then screened for resistance to common herbicides.

The survey showed 95% of growers grow their own crop seed, with only 5% buying seed off-farm. Most (70%) used contractors to clean their seed.

74% of samples were contaminated with weeds, despite 97% of growers stating it had been cleaned.

Contamination was variable between samples, with about 6 weed seeds per kilogram of crop seed (or 300 seeds per ha at a sowing rate of 50 kg/ha). The main contaminant was annual ryegrass (2.8 seeds per kg), which occurred in more than half the samples. Also

wild radish (1.4 seeds per kg); and brome grass and wild oats (less than one seed per kg) found in about one-third of samples.

Most populations of annual ryegrass were resistant to Group A diclofop-methyl (84%) and Group B sulfometuron (91%) herbicides.

Wild radish was resistant to the Group B herbicide chlorsulfuron. Wild oat was resistant to the Group A herbicide diclofop-methyl.

Seed saved for use as next year's crop should be harvested from low-weed-population paddocks as seed grading is unlikely to remove all weed seeds. While a high proportion of samples were contaminated, 25% were weed-free, indicating it is possible to achieve clean crop seed. Alternatively use quality assured seed with a satisfactory purity level.

Source: GRDC Groundcover Issue 9

Research: Mechelle Owen, Senior Weeds Researcher, Australian Herbicide Resistance Initiative.

Assessing seed purity

Sieving a sample of seed is the best way to assess the level of contamination. This photo (right) shows the level of contamination after sieving a sample of wheat through a 2.0 mm screen. A 2.2 mm screen is used for barley. These are the same screens used at bulk receival sites. The sample on the right is the likely result of processing wheat through an on-farm seed grader which is not set up correctly, or is processing too quickly.

AusWest and Stephen Pasture Seeds recommends the purchase of a set of sieves and the regular checking of the 'cleaned' seed as your grader is processing your seed. A small investment in time and money at grading is likely to save you in the long run!



The contaminants in a seed wheat sample can be assessed simply by sieving through a 2 mm screen



Urambie barley

Clearfield® Production System

The Clearfield® Production System was designed to deliver extended weed control, increased yield potential and crop quality. The system matches selected seed varieties with Intervix®, a custom designed herbicide. Using registered products allows wider grower access to markets and helps ensure grain quality and residue declarations can be completed when required.

All Clearfield® wheat and barley varieties have a tag indicating the tolerance to the Intervix® herbicide.



Condo wheat

For more information contact AusWest and Stephen Pasture Seeds or speak to your local seed retailer



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