

A Schutte-Lanz airship, 143 metres in length and supporting three gondolas, each with a 240 hp Maybach engine.

began production in 1912, in an extension of the Lanz Mannheim farm machinery plant.

Although there were several variations of design, the majority of the Schutte-Lanz airships featured a length of 143 metres and a width of 18.5 metres. The internal gas bags had a capacity of 2548 cubic metres of lighter-than-air hydrogen gas, which provided a lift capacity of 7122 kilos at a height of around 2200 metres. Either two or three gondola shaped control cabins were rigidly suspended below the gargantuan structure, each supporting a 240 hp Maybach petrol engine driving a single propeller.

Alas, problems occurred. In damp weather the wooden frame absorbed moisture, adding undesirable significant weight. Also the timber laminations tended to warp and glued joints separated.

The first airship to be brought down in flames during World War 1 was indeed a Schutte-Lanz. It crashed off the Danish coast.

Not an assumption – a fact!

Apart from the Lanz factory being destroyed by US Airforce bombers, during the latter weeks of World War 2, the Schutte-Lanz episode is the only misadventure to befall the otherwise hugely successful era of agricultural design and production performed by the German firm of Heinrich Lanz A.G. of Mannheim, since it began trading in 1859. ■

IAN'S MYSTERY TRACTOR QUIZ

Question: Can you identify this Aussie tractor?

Clue: It is powered by a GM 371 two stroke diesel (and restored by Ian).

Difficulty: Any 10 year old country lad could identify it – probably.

Answer: See page 48.



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Easy to adopt crop competition tools

By Peter Newman

“We choose to go to the Moon! We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard,” John F. Kennedy, 1962.

All well and good if you’re the American government with a king’s ransom to spend. But if you’re an Australian farmer? It’s probably better to do the easy things.

“We choose to adopt stacked crop competition tools, not because they are hard, but because they are easy.”

Agronomist Chris Davey and the team at YP AG on the Yorke Peninsula in South Australia were determined to help their clients improve their ryegrass control through stacking crop competition tools with robust pre-emergent herbicide mixes. They were well aware that if the competition tools were too costly or complex, their clients weren’t likely to adopt them, so they focused on the tools that are easy to adopt in a trial near Paskeville in 2018.

By switching from wheat with a standard herbicide mix to a competitive barley variety – with a premium herbicide mix – sown east/west, they more than doubled grain yield and reduced ryegrass seed set potential by a whopping 95 per cent. All of these tools are easy to adopt at relatively low cost and they made a big difference to both profit and the future seedbank of the farming system.

We are very grateful to Chris and the team for sharing these trial results with us and showing us how it’s done. They showed us that stacked crop competition doesn’t have to be hard, it can be relatively easy, and we should perhaps do the easy things first.

The Paskeville site

The ryegrass at this site near Paskeville, on the northern Yorke Peninsula in South Australia, was big in number and you guessed it, very resistant.

- ☐ Trifluralin – 100 per cent resistance;
- ☐ Avadex – 50 per cent resistance; and,
- ☐ Boxer Gold – 35 per cent resistance.

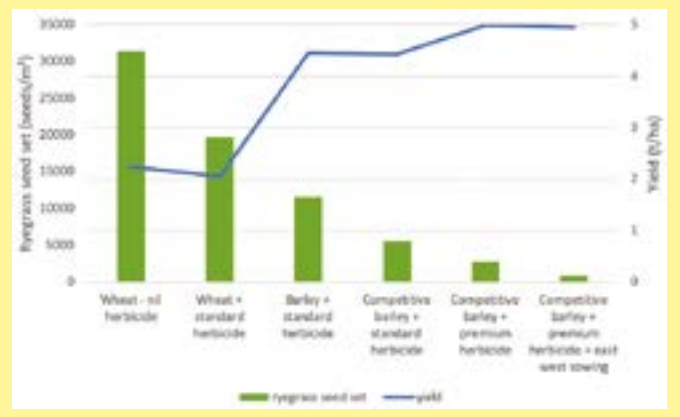
As a result, the poorly competitive Emu Rock wheat sown with nil herbicide was low yielding and swamped with ryegrass. Chris Davey and the team from YP AG estimated ryegrass seed set potential by counting ryegrass tiller numbers, spikelet number and the average number of seeds per spikelet.

Figure 1 is a selection of some of the data from this trial that tells the story of stacking herbicide and crop competition tools. Now let’s break it down into the steps.

Stack 1: Add standard herbicide to wheat

Adding the cheap, no-frills standard herbicide brew of trifluralin + Avadex to the wheat reduced ryegrass seed set by only 37 per cent – clearly affected by the resistance to these herbicides at this site.

FIGURE 1: More crop, fewer weeds



Stack 2: Switch to barley

Boom!

Switching crop types from wheat to barley with the same herbicide brew further reduced ryegrass seed set potential by 42 per cent and doubled the yield in this trial. Just by switching from wheat to barley! This is purely because barley is more competitive than wheat. Pretty simple to adopt and profitable too given that barley nearly doubled the yield of wheat.

	Yield (t/ha)
Barley	4.27
Wheat	2.76

Stack 3: Switch to competitive barley variety

Boom!

A further 50 per cent reduction in ryegrass seed set just by switching to Compass barley which is known to be more competitive than Spartacus. Adoption doesn’t get much simpler than switching varieties.

Stack 4: Switch to premium herbicide

Boom!

A further 50 per cent reduction in ryegrass seed set by switching to Boxer Gold + Avadex, despite the fact that there is some resistance to both of these herbicides at this site. Sure, there is an extra cost, but it is simple to adopt and the extra cost, in this case, is easily covered by an extra 0.5 tonne per hectare of yield.

Stack 5: Switch from North/South to East/West sowing

Boom!

A massive 69 per cent reduction in ryegrass seed set. Ok, not every paddock lends itself to east/west sowing, but for those



Barley has a much higher competitive ability than wheat – and some barley varieties are better competitors than others.

paddocks that do, it may well be worth the hassle of changing run lines. What's more, the cost of adoption is essentially zero.

There was essentially no difference in yield in the barley between N/S and E/W sowing, and this is consistent with past research. But the wheat sown E/W yielded about 0.5 tonne per hectare more than wheat sown N/S. This is likely due to the wheat having less competitive ability than barley and therefore benefiting from the extra competition that E/W sowing offers.

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wheat having less competitive ability than barley and therefore benefiting from the extra competition that E/W sowing offers.

	North/South (t/ha)	East/West (t/ha)
Barley	4.29	4.24
Wheat	2.53	3.07

	Average wheat and barley yield (t/ha)
North/South	3.41
East/West	3.66

What does that all add up to?

Competitive barley + premium herbicide + East/West sowing:
Potential ryegrass seed set 890 seeds/m²

Compared to

Less-competitive wheat with standard herbicide treatment, sown North/South:

Potential ryegrass seed set 19,700 seeds/m²

Equals

95 per cent reduction in ryegrass seed set.

Conclusion

Crop competition didn't matter much when the herbicides all worked, but it matters now. The great thing about this trial is demonstrating that adding some relatively simple and cheap crop competition tools, in addition to robust pre-emergent herbicides, can make a huge difference to both crop yield and the weed seed bank. More crop, fewer weeds, by doing the easy things – which matches the AHRI slogan perfectly: "More crop, less weeds – sustainably!"

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Practical approach delivers spray drift practice change

A DRIER season might have reduced the need to spray weeds in south west Queensland, but it hasn't stopped Roma farm overseer Kayne Maskill from putting in place changes that should reduce the risk of spray drift in the future.

Kayne from Echo Hills Farming Company was one of more than 95 growers, who took time out to learn about best practice spray application at workshops organised by ConnectAg and supported by the GRDC.

Developed in response to locally identified needs, the Spray Drift Awareness workshops were designed to give participants practical tools and guidelines to make changes at farm level to reduce the risk of spray drift.

Kayne and his wife Sonya work with mixed farming operators Peter and Nikki Thompson and said the workshop had already prompted him to make changes at Echo Hills.

Look at spraying with fresh eyes

"This workshop allowed me to look at our spraying practices with fresh eyes and make some changes, which we are ready to put into practice in the paddock as the season improves," Kayne said.

A survey, conducted six months after the workshops, found an impressive 70 per cent of participants surveyed had already implemented changes to their spray practices or were now confident their current procedures were best practice.

The survey found a total of 45 per cent of respondents had already implemented changes to their spray practices in the six months following the workshops. They were motivated to make changes as a result of what they learnt at the workshops, coupled with the regulatory changes to 2,4-D usage that came into effect last October.

Another 25 per cent of respondents said the workshops reinforced that their spray application operations and procedures were already best practice.

A total of 30 per cent of respondents reported that they had intended to make practice changes post the workshop, but implementing these changes had been hindered by ongoing drought conditions over summer.

Organiser Rhonda Toms-Morgan from ConnectAg in Roma said survey feedback indicated that the information delivered had been straightforward, offered a complete guide to effective crop spraying and prompted practice change or confirmed growers were already implementing industry best practice.

Presented by spray specialist Mary O'Brien, the Spray Drift Awareness workshops covered topics such as record keeping, weather conditions including inversions, nozzle selection, spray quality, coverage and efficacy, water quality, sprayer speed and adjuvants.



Roma farm manager Kayne Maskill from Echo Hills has already started making changes to reduce spray drift risk.

"Workshop participants were primarily property owners responsible for more than 650,000 hectares of farming country in this region," Rhonda said.

"Interestingly more than half reported this as the first spray drift awareness workshop they had attended. A total of 85 per cent were aged between 19 and 50, which also suggests we are reaching the next generation, or a new generation of growers."

Rhonda said the participants who made practice changes primarily reported investing in new nozzles as their major mechanical change.

This was followed by behavioural changes in:

- Scheduling spraying to avoid night-time applications;
- Improved weather monitoring to detect inversions and determine appropriate spray conditions; and,
- Better record keeping.

"Tough seasonal conditions have hampered people's efforts to put some of these things into practice," Rhonda said.

"But participant feedback indicates the information was relevant and helped people better understand the implications of the regulatory change which has followed the workshop, for 2,4-D specifically.

"They are now well positioned to decide how to equip their operations to adhere to label changes for chemical applications into the future."

Rhonda said when asked about the most important learnings from the workshop, the majority of attendees valued information about inversion risks at night and the impact of weather conditions on drift management.

"These workshops were developed in response to a grower-identified gap in knowledge between understanding and in-paddock practical spraying," she said.

"What growers wanted were practical guidelines for best practice so they could ensure chemicals were landing on target and they were reducing the risk of drift right across the region.

Demand for practical information

GRDC Crop Protection Officer – North, Vicki Green, said the workshops were an example of organisations, such as the GRDC, being responsive to grower demand for practical information delivered at a regional level.

"The GRDC understands growers want to get product on target, because it means they are getting the best bang for their buck in terms of chemical use and application," Vicki said.

"To support growers, the GRDC are committed to playing a part in improving awareness, understanding and guiding the implementation of best practice through workshops like these."

Mary's farm spray drift management presentation at the workshop was complemented by a herbicide resistance session with well-known agronomist Paul McIntosh from the Australian Herbicide Resistance Initiative (AHRI), a GRDC investment.

Other presenters included Mick Russell from Workplace Health and Safety Queensland, who explained the current legal guidelines for safe workplaces, and GRDC Biosecurity Manager Ken Young who, along with Vicki, discussed chemical regulations and ongoing research into spray management.

For the latest spray best practice information from the GRDC go to <https://bit.ly/2vYVrww>



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