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# Weed Seed Wizard case study - don't stop harvest weed management because it’s a dry year

Department of Primary Industries and Regional Development, Western Australia


# Weed Seed Wizard case study

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## Don't stop harvest weed management because it’s a dry year

Work done by Australian Herbicide Resistance Initiative (AHRI) has shown that annual ryegrass seed numbers can still be relatively high in poor seasons (see Table 1). In 2012, 29 annual ryegrass plants per square metre produced 7000 seeds. These seeds can carry over to the following year to reduce yields.

**Table 1 Wheat yield and annual ryegrass seeds produced in 2011 (a good year) and 2012 (a dry year)**

| Year | Wheat yield (t/ha) | Annual ryegrass (plants/$m^2$) | Annual ryegrass seeds (seeds/$m^2$) |
|---|---|---|---|
| 2011 | 4.0 | 19 | 12,000 |
| 2012 | 0.6 | 29 | 7,000 |

Note the comparative ryegrass seed yields for the two seasons. There was not much of a yield penalty for ryegrass in the drought year, 2012, when compared with wheat.

## Cut your crop lower in a dry year to catch more ryegrass seeds

In a good year, with a big crop, there will be less light penetration and the annual ryegrass tillers will be upright and easier to catch. In a low-yielding year with a light crop and an open canopy, the ryegrass tillers will also be shorter. The work by AHRI showed that a 40 cm harvest height in 2011 in a high yielding crop collected about 60% ryegrass seed at crop maturity compared to about 2% in 2012 in a low yielding crop).

## The more seeds dropped in one year, the less yield in the following year

To illustrate the difference in cutting height in a dry year, we simulated the wheat yields in 2013 after 7,000 annual ryegrass seeds/m$^2$ were set in 2012 using the Weed Seed Wizard.

If the crop was cut at 10 cm, only 1250 ryegrass seeds/m$^2$ are returned to the seedbank with a resulting 400 kilograms per hectare (kg/ha) of wheat yield loss the next season. This compares to a yield loss of 1.4 tonnes per hectare (t/ha) when the crop is cut at 40 cm and most of the ryegrass seeds are dropped (Figure 1).

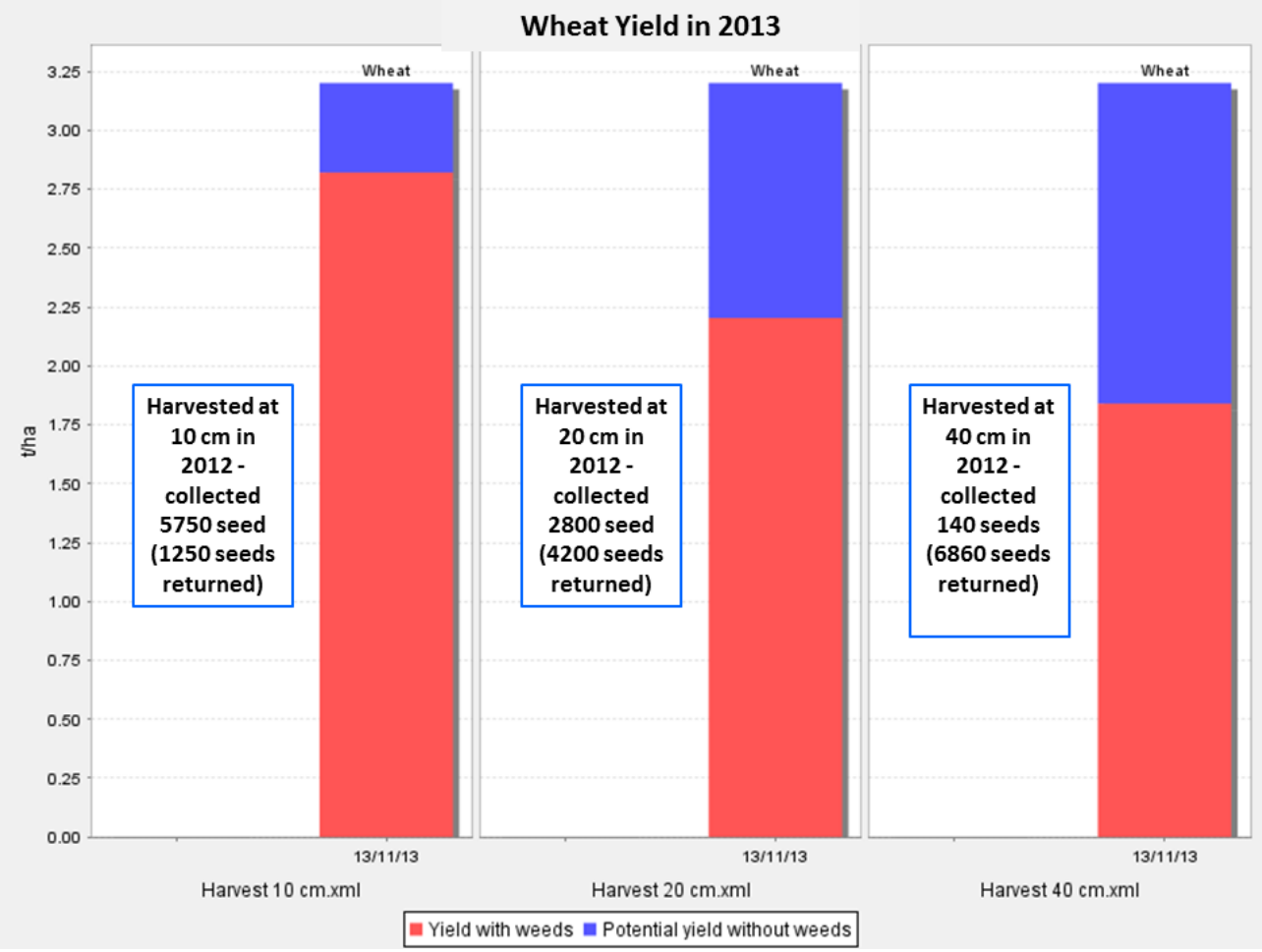


**Figure 1 Simulated yield loss in 2013 after harvest in 2012 at harvest heights of 10, 20 and 40 cm**

In dry years where wheat yield is low, it is possible to burn narrow windrows in wheat. For wheat crops of 2-2.5 t/ha or less, it is possible to burn just the windrows. Cutting low is imperative to keep the fire in the windrow and to optimise the burn.

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