

GRDC Grains Research Update



Taking a long term view of crop rotation pays off

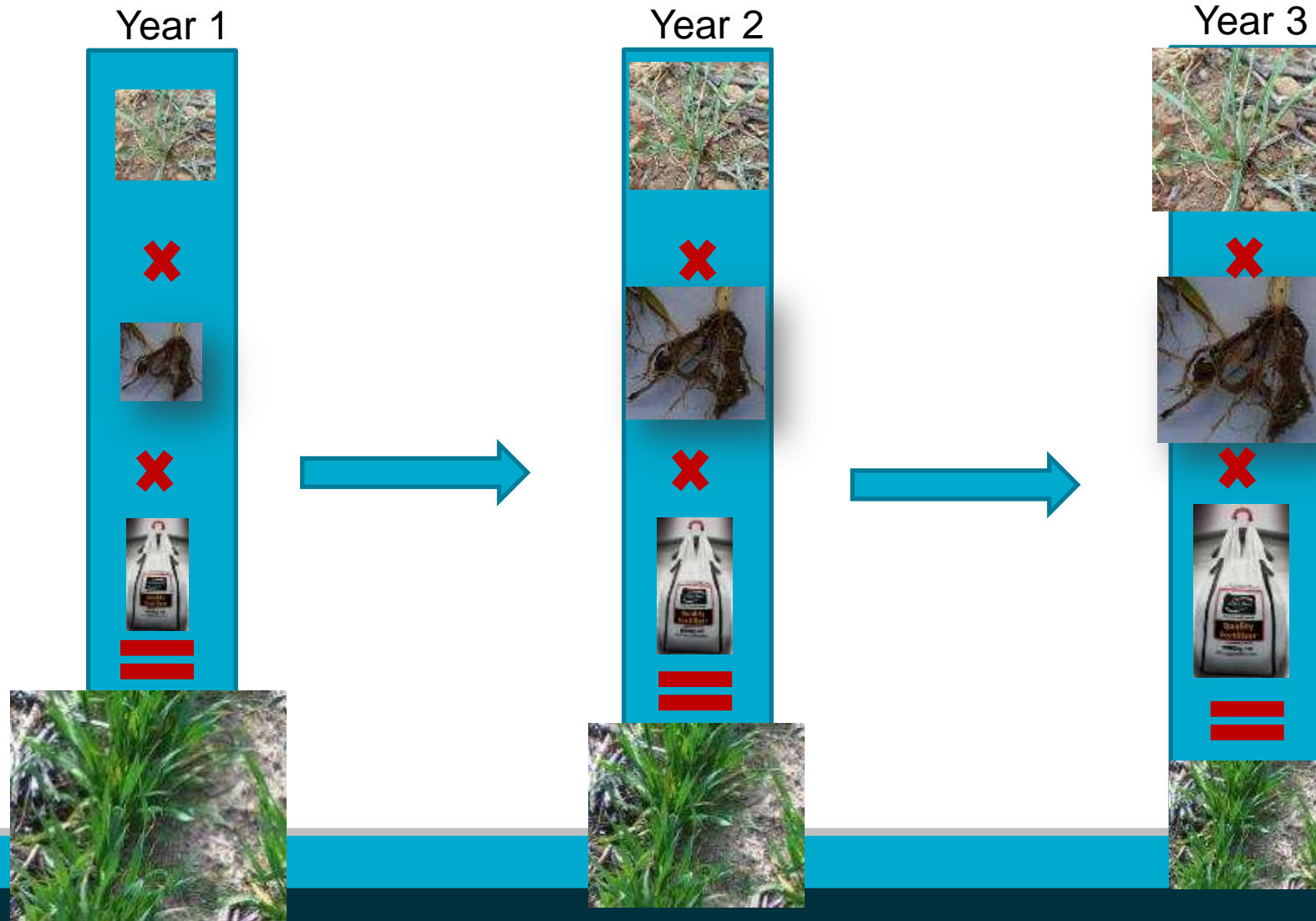
Roger Lawes, CSIRO

How many years should you look ahead when planning?

- Planning horizon (3 year, 5 year or 10 year)
- Wheat price (\$270 /t, \$350 /t)
- Weed burden

What enterprise mix should I consider over the short, medium and long term, given weed pressures and commodity prices

LUSO – weeds, disease and nitrogen



Land uses and economic parameters

Enterprise	Yield (t/ha)	Low Price (\$/t)	High Price (\$/t)	Cost (\$/ha)	N requirement (kg/ha)	Weed survival (0-1)
Wheat	3	270	350	250	160	0.05
Lupins harvested	1.5	270	270	200	0	0.05
Sprayed pasture	3	0	0	80	0	0.03
Canola	1.3	550	550	250	120	0.03
Lupins manured	1.5	0	0	150	0	0.03
Pasture	3	90	90	100	0	0.03

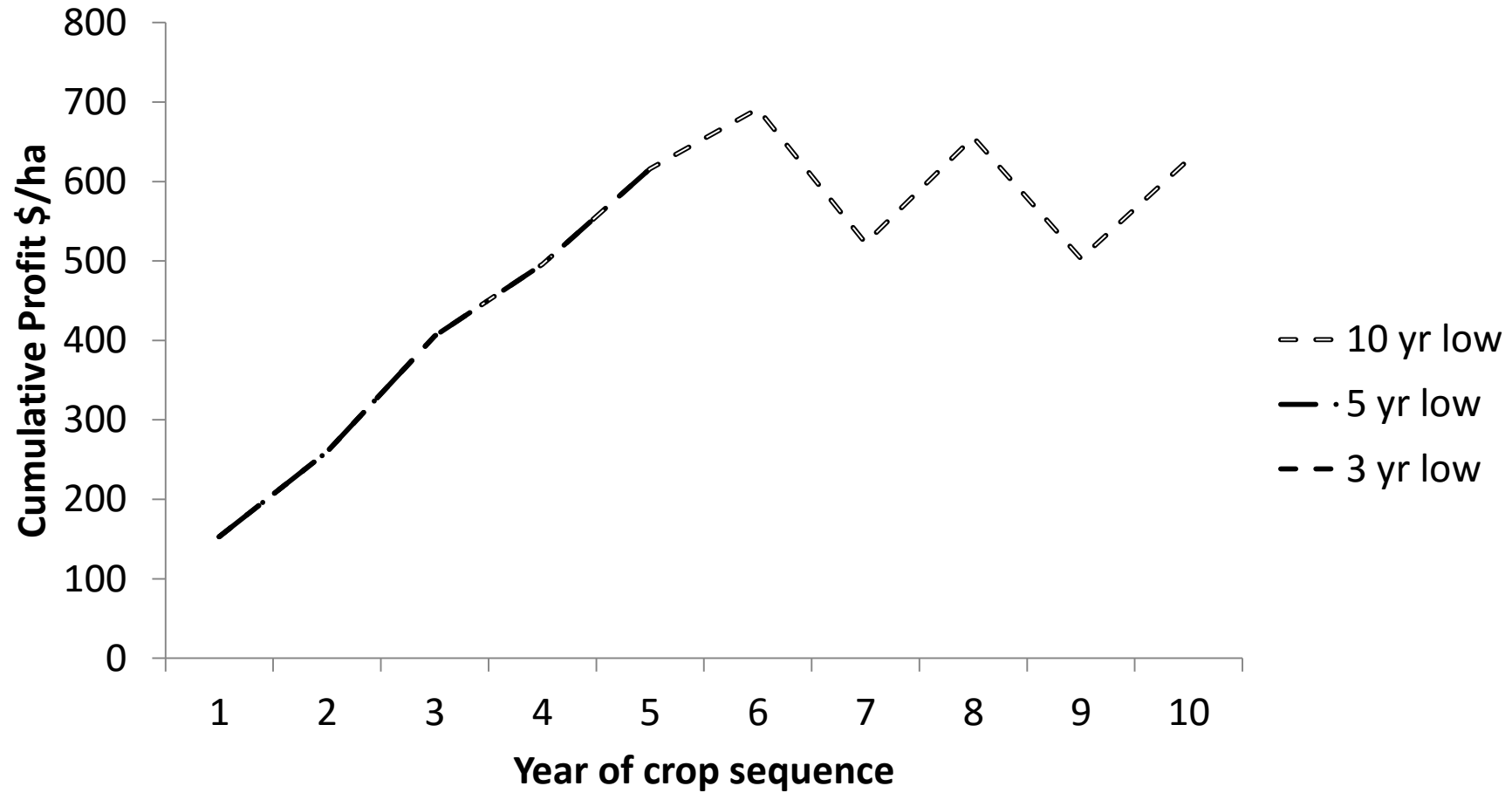
Low prices (\$270 / t wheat)

	3 yr	5 yr	10 yr
1	Wheat	Wheat	Wheat
2	Canola	Canola	Canola
3	Wheat	Wheat	Wheat
4		Canola	Canola
5		Wheat	Wheat
6			Wheat
7			Pasture
8			Wheat
9			Pasture
10			Wheat

High prices (\$350 /t wheat)

	3 yr	5 yr	10 yr
1	Wheat	Wheat	Wheat
2	Wheat	Wheat	Wheat
3	Wheat	Canola	Wheat
4		Wheat	Pasture
5		Wheat	Wheat
6			Wheat
7			Wheat
8			Pasture
9			Wheat
10			Wheat

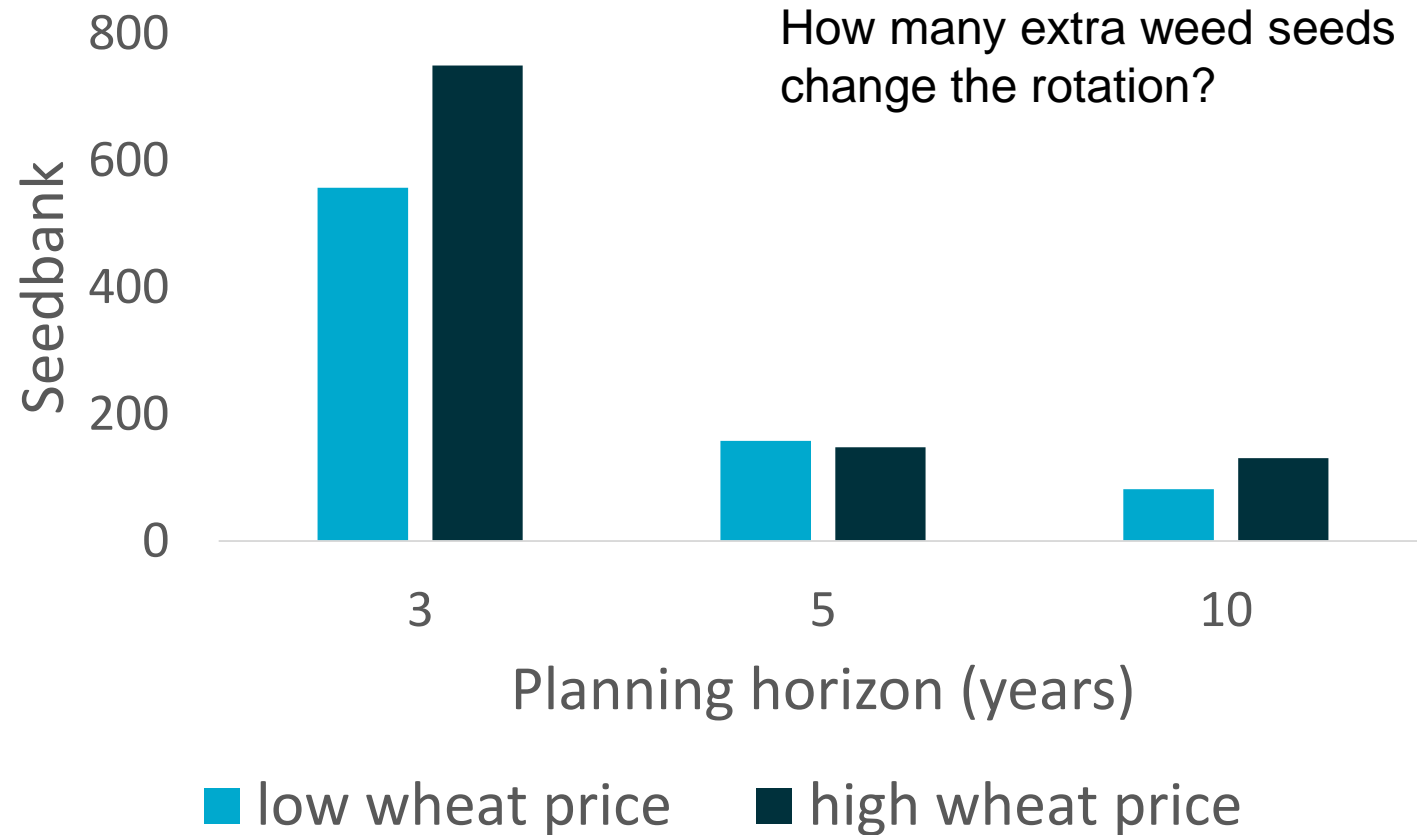
Low prices – cumulative profit



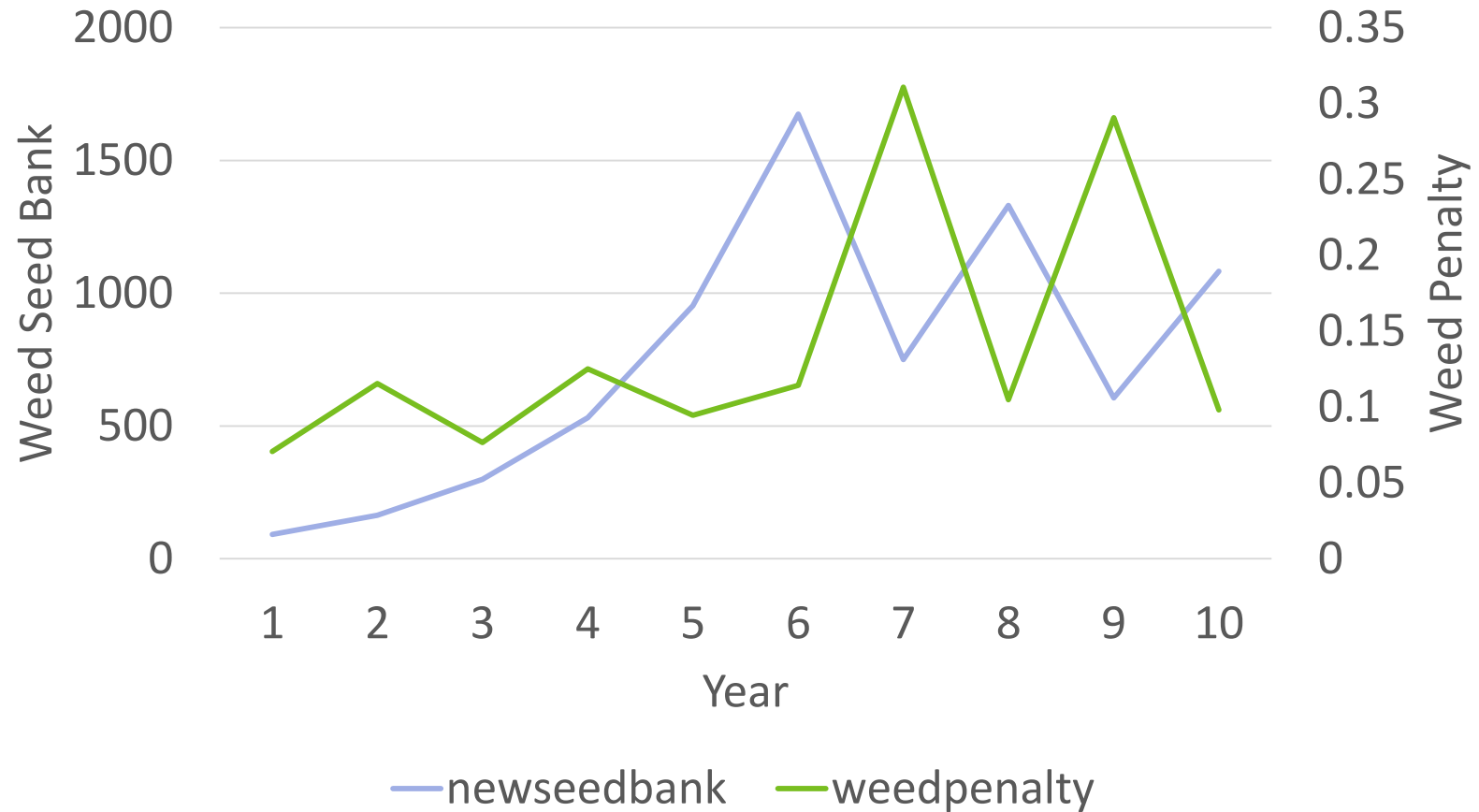
High wheat prices – cumulative profit



Planning horizon influences the importance of seedbank



Why are there more breaks in long term rotations?



Conclusion

Short term (1 – 2 years) – grow the most profitable crop, unless there is a large and obvious trigger (weeds, disease)

Long term – crop slightly less intensively (1 break every 3 years)

fewer crops, higher yields and lower input costs.

manage the weed seed bank

manage the nutrient status

Crop profitably, and expect to crop intensively, but have some breaks planned, because eventually, you will need them!

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Questions?