

# Financial Returns from APH Wheat Varieties in NSW

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## Low protein in new APH varieties

Much of NSW has recently experienced a number of low protein seasons. These low protein seasons have created concerns regarding the relative ability of certain new varieties to achieve desired grain protein levels. This has led some growers to switch to lower yielding 'high protein achieving' varieties, with the aim of improving the chance of achieving the Australian Prime Hard (APH) grade and in doing so hopefully generate better financial returns.

Nitrogen is the major component of protein and therefore any factor that affects plant nitrogen availability, uptake, and mobilisation will also affect grain protein.

A higher yielding variety produces more grain and/or larger grain. However, varieties grown under the same conditions have access to the same amount of nitrogen. Therefore, with higher yielding varieties this fixed nitrogen supply is distributed amongst more and/or larger grain. Consequently, the proportion of nitrogen to starch will be smaller in higher yielding varieties. This is known as the nitrogen or protein 'dilution effect'.

Any management change, including change of variety, that increases grain yield but at the same time fails to increase total available nitrogen (eg. fertiliser, rotation crops) will result in lower protein.

There are some other genetic factors that can contribute to minor differences in grain protein achievement, but the majority of the differences at the same location can be accounted for by differences in grain yield.

## An important question

*Given that higher yielding varieties will generally achieve lower grain protein, should growers choose lower yielding varieties so as to give themselves a better chance of achieving the maximum possible price grade and therefore potentially the greatest return?*

The simple answer is **NO: YIELD IS KING.**

## Why is yield 'King'?

A review of every main season wheat variety National Variety Trial (NVT) conducted in NSW over the past four seasons (2010-2013) shows the highest yielding APH variety also consistently achieves the highest gross returns.

For the past four years of NSW NVTs the gross financial return for each variety, in each trial, in each year (104 individual trials) was calculated and then averaged across each region as well as for the state overall.

An average pool silo return price of \$270/t for APH; \$255/t for AH; and \$245/t for APW was used in the analysis. The protein achieved for each variety in each trial was used to determine the grade and therefore price used in calculating the gross return (yield x price).

Table 1 presents the yearly and average gross return in southern NSW over four years, while Table 2 presents gross returns for northern NSW over the same four year period.

Table 1. Gross return (\$) from APH varieties in southern NSW NVTs (2010-2013).

Variety	2010	2011	2012	2013	4 Year Average
Crusader <sup>o</sup>	987	959	792	908	912
EGA Gregory <sup>o</sup>	1242	1031	920	876	1020
Spitfire <sup>o</sup>	1251	994	830	906	997
Suntop <sup>o</sup>	1320	1052	971	935	1072
Sunvale	1170	989	899	833	975
# NVTs	13	13	13	12	51
Best Return	Suntop <sup>o</sup>	Suntop <sup>o</sup>	Suntop <sup>o</sup>	Suntop <sup>o</sup>	Suntop <sup>o</sup>
\$ Advantage	\$69/ha	\$21/ha	\$51/ha	\$27/ha	\$52/ha

Table 2. Gross return (\$) from APH varieties in northern NSW NVTs (2010-2013).

Variety	2010	2011	2012	2013	4 Year Average
Crusader <sup>o</sup>	1079	960	666	708	850
EGA Gregory <sup>o</sup>	1198	1110	718	729	935
Spitfire <sup>o</sup>	1181	1090	694	744	923
Suntop <sup>o</sup>	1280	1082	766	751	966
Sunvale	1096	1015	677	697	868
# NVTs	13	13	14	13	53
Best Return	Suntop <sup>o</sup>	EGA Gregory <sup>o</sup>	Suntop <sup>o</sup>	Suntop <sup>o</sup>	Suntop <sup>o</sup>
\$ Advantage	\$82/ha	\$20/ha	\$48/ha	\$7/ha	\$31/ha

In southern NSW, Suntop<sup>o</sup> produced the greatest gross financial returns in all four years, producing a range of \$21/ha to \$69/ha higher returns than the next best variety (EGA Gregory<sup>o</sup> in some years and Spitfire<sup>o</sup> in others).

In northern NSW, Suntop<sup>o</sup> produced the greatest gross financial returns in three of the four years, with a range of \$7/ha up to a massive \$82/ha greater returns than the next best variety which was again EGA Gregory<sup>o</sup> in some years and Spitfire<sup>o</sup> in others.

Table 3 presents the average yield, protein and gross return achieved by each of the main season APH varieties across all 104 NVTs in NSW conducted from 2010 to 2013.

Table 3. Mean yield, protein and gross return (\$) for APH varieties in NSW NVTs 2010-2013 (104 trials).

Variety	Yield (t/ha)	Protein (%)	Gross Return (\$)
Crusader <sup>o</sup>	3.42	12.7	880
EGA Gregory <sup>o</sup>	3.87	11.9	977
Spitfire <sup>o</sup>	3.70	13.1	959
Suntop <sup>o</sup>	4.05	11.8	1018
Sunvale	3.56	12.8	921
\$ Advantage of Suntop <sup>o</sup> over next best variety			\$41/ha

## Summary

- The highest yielding and lowest protein achieving variety, Suntop<sup>o</sup>, consistently produced higher financial returns than the highest protein achieving variety Spitfire<sup>o</sup>: \$75/ha higher return in southern NSW, \$43/ha higher return in northern NSW, and \$59/ha higher return across all of NSW
- Suntop<sup>o</sup> consistently produced higher returns than Spitfire<sup>o</sup> despite being 31% less likely to achieve the APH grade
- Another low protein achieving variety, EGA Gregory<sup>o</sup>, returned the second highest gross returns overall
- Growers aim to achieve consistent and high financial returns. *Choosing a variety based on protein achievement alone is false economy!*

### contacts

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