

Top Gro Newsletter



Are you selling Straw or are you selling Nutrients?

When deciding whether to sell straw off the field, it is important to be aware of its stored nutrient value. At face value, the return on cereal straw over the last couple of years has been lucrative. However, it's important to ask yourself what else are you selling when that straw leaves the field. From an agronomic perspective its important to do a deep dive into the amount of nutrients that are stored in the straw in order to determine the fertilizer equivalent value.

We know that from a lbs/tonne standpoint potassium's average nutrient content is the largest for cereal straw. This comes as no surprise because its roll within the plant is to promote stalk strength and standability by stimulating the thickening of cell walls. But there is also a significant amount of Nitrogen, Phosphorus, and sulfur in the straw as shown in (Table 1).

For every bushel of wheat, you can assume between 45-50 lbs of straw. With a conservative 80 bushel wheat crop roughly 4000lbs of straw will be produced. And on the assumption that it's a 1100 lbs bale, that's 3.6 bales to the acre or 1.8 tonne/acre

Table 2: Nutrient price / pound of fertilizer

Product	Analysis	\$/Tonne ¹	N/lb	P/lb	K/ lb	S/lb
Urea	46-0-0	\$ 1,050	\$ 1.035	-	-	-
MAP	11-52-0	\$ 1,265	-	\$ 0.884	-	-
Potash	0-0-60	\$ 875	-	-	\$ 0.661	-
AMS	21-0-0-24	\$ 685	\$ 1.295	-	-	\$ 0.389

¹ Approximate values of Fertilizer at the time of publishing article

To assess the nutrient value of straw, multiply the amount of nutrient per tonne of straw (Table 1) by the value of the nutrient per pound of fertilizer (Table 2). These calculations are shown in Table 3.

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Table 1: Average nutrient contents of straw for Wheat, Barley and Oats

	Nitrogen	Phosphorus	Potassium	Sulphur
	lbs/Tonne	lbs/Tonne	lbs/Tonne	lbs/Tonne
Wheat	15	3.2	24	3
Barley	15.8	3.2	31	3.1
Oats	16.3	3.5	37	3.5

Table 3		
Wheat		
Nutrient	Calculation	\$ of Nutrient/tonne
Nitrogen	15 lbs N/Tonne * \$1.035/lb N	\$ 15.53
Phosphorus	3.2 lbs P/Tonne * \$0.884/lb P	\$ 2.83
Potassium	24lbs K/Tonne * \$0.661/lb K	\$ 15.88
Sulphur	3 lbs S/Tonne * \$ 0.389/lb S	\$ 1.17
		\$ 35.40
Barley		
Nutrient	Calculation	\$ of Nutrient/tonne
Nitrogen	15.8 lbs N/Tonne * \$1.035/lb N	\$ 16.36
Phosphorus	3.2 lbs P/Tonne * \$0.884/lb P	\$ 2.83
Potassium	31lbs K/Tonne * \$0.661/lb K	\$ 20.51
Sulphur	3.1 lbs S/Tonne * \$ 0.389/lb S	\$ 1.20
		\$ 40.90
Oats		
Nutrient	Calculation	\$ of Nutrient/tonne
Nitrogen	16.3 lbs N/Tonne * \$1.035/lb N	\$ 16.88
Phosphorus	3.5 lbs P/Tonne * \$0.884/lb P	\$ 3.10
Potassium	37lbs K/Tonne * \$0.661/lb K	\$ 24.48
Sulphur	3.5 lbs S/Tonne * \$ 0.389/lb S	\$ 1.36
		\$ 45.81

Based on the above variables, the fertilizer cost equivalent of nutrients in one tonne of straw is \$35.40. Now if you take that and multiply it by the estimated straw yield/acre (1.8 tonnes/acre) that's a cost of \$63.72/acre. If you were to look at it on a per bale basis, removing the straw from your field is costing you \$17.70/bale of fertilizer cost equivalent.

While it is critical to maximize profitability from the land, it's important to balance short term economics with long term sustainability. 

