



Nutrient Offtake Report 2020

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Date lab results received by ADAS: 29 September 2020
Date ADAS reported offtakes: 29 September 2020
Date ADAS benchmark report due: November 2020



Welcome to YEN Nutrition. Providing grain samples, field data, harvest data & payment entitles you to three reports:

1. **Offtake Report** to guide maintenance of soil P, K, etc.
2. **Benchmarking Report** (in Nov.) ... to diagnose any nutrition issues
3. **Annual Review** (in February) ... with overall lessons from 2020.

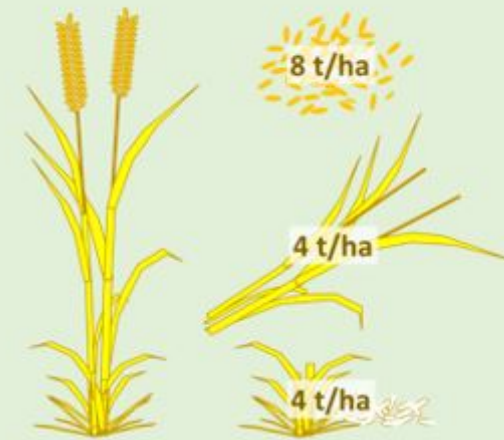
This is your **Offtake Report** which contains

- **Grain analyses**, straight from the lab ... on next page and
- **Estimated offtakes** for five major nutrients ... on last page(s).

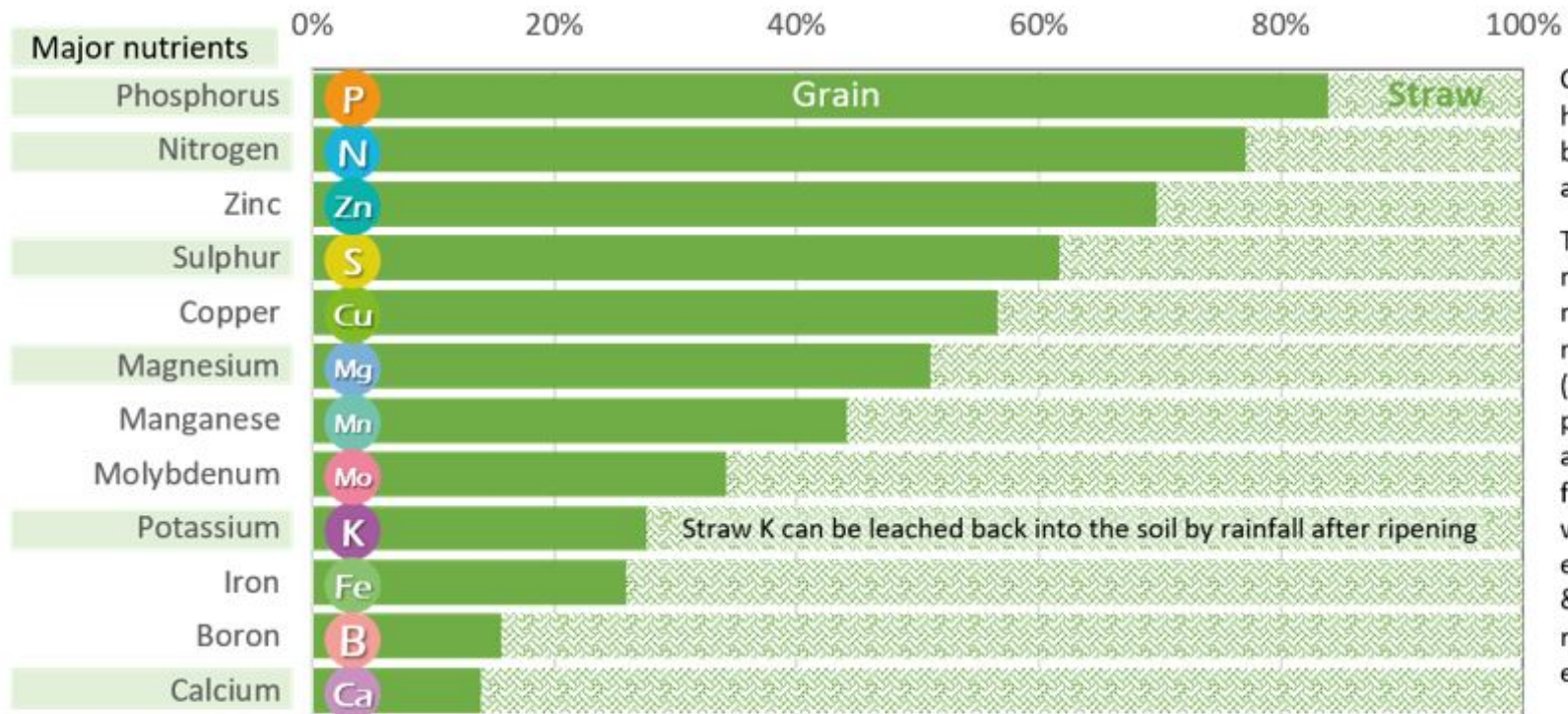
Estimating Nutrient Offtakes:

If you removed straw we assumed that this weighed about half of the dry grain weight that you harvested. e.g. a crop yielding 8 t/ha ...

We assumed nutrient contents of straw were averages taken from AHDB and PDA publications.



Normal distribution of nutrients in wheat at harvest, % final uptake



Crop nutrients differ in how they are shared between grain and straw at harvest.

This graph shows how a normal wheat crop has most N & P in grain but most K in straw. (Estimated from published tables of average analyses of feedstuffs). So, if straw was removed, our estimates of N, P₂O₅, SO₃ & MgO offtakes are more reliable than K₂O estimates.





Grain Nutrient Concentrations

The nutrient concentrations in grain dry matter from your chosen Lab are reported below. We have used these in the next table along with your Harvest Details to estimate nutrient offtakes. To help diagnose your crops' nutritional status, critical and low nutrient concentrations for wheat are given below. However, interpretation of nutrient status will be easier in November, when most 2020 samples have been analysed and benchmarking will be possible.

Field	N ¹ %	P %	K %	S %	Mg %	Ca %	Fe mg/kg	Mn mg/kg	Zn mg/kg	Cu mg/kg	B mg/kg	Mo mg/kg
Low²	1.9	0.28	0.35	0.12	0.08	0.04	36	21	20	3	1	0.3
Critical³	1.9	0.32	0.38	0.12	0.08	NK	NK	20	15	2	NK	NK
Your fields / samples												
North Field	1.82	0.20	0.40	0.12	0.07	0.06	30	26	15	4.1	0.8	0.4
South Field	2.07	0.31	0.47	0.12	0.10	0.04	51	20	37	4.0	1.2	0.6
East Field	2.26	0.18	0.41	0.14	0.08	0.06	30	22	20	3.2	0.9	0.5
West Field	2.31	0.34	0.43	0.15	0.11	0.06	66	16	39	5.9	0.8	1.1
Central Field	2.43	0.37	0.44	0.17	0.13	0.03	42	22	48	6.0	1.1	0.6
River Field	4.49	0.40	1.08	0.21	0.12	0.12	49	12	43	13.1	10.4	1.3
Hill Field	2.35	0.39	0.53	0.15	0.14	0.05	48	44	24	4.2	1.0	0.9

¹ % protein is estimated from %N, as N x 5.7 for cereals or N x 6.25 for oilseeds & pulses

² Low: 25% of results for wheat grain in YEN and associated projects from 2016 to 2019 gave results less than this.

³ Critical values, if known, are taken from the scientific literature on wheat (feed varieties). Adjacent treatments achieving less than this value generally gave smaller yields. NK = not known.





Crop Nutrient Offtakes to help maintain soil nutrient status

Crop nutrient offtakes indicate the rates at which each crop will have run down the soil's nutrient status. In order to maintain soil nutrient status it will often be necessary to replace nutrient offtakes with nutrient applications either in organic materials or manufactured fertilisers. Your grain nutrient concentrations (in the previous table) have been used with your estimated yields and reported straw usage to estimate nutrient offtakes for crops represented by each of your samples in the table below. Any soil with a soil index (see cell colours below) less than is required to sustain intended crop growth will need nutrient applications larger than offtake by the previous crop.

KEY to soil levels:

Index 0: apply more than off-take	Index 1: at least replace off-take	Index 2: replace offtake	Index 2+: replace offtake	Index 3: monitor	Index >=4: run-down & monitor
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Sample Name	Crop type	Yield t/ha	Straw fate	Soil levels, mg/l			Oftakes in grain and straw, kg/ha				
				P	K	Mg	N	P ₂ O ₅	K ₂ O	SO ₃	MgO
North Field	Wheat	8.8	Left	21	160	40	136	34	36	22	8
South Field	Wheat	11.5	Left	14	475	310	202	70	55	30	16
East Field	Wheat	6.3	Removed	22	200	64	143	26	57	21	12
West Field	Spring Barley	4.1	Left	28	171	35	80	27	18	13	6
Central Field	Wheat	5.1	Left	15	380	400	105	37	23	18	9
River Field	Field Beans	4.9	Left	14	173	65	185	38	54	22	8
Hill Field	Wheat	7.2	Left	18	345	72	145	55	39	23	14

