



Nutrient Offtake Report 2023

FARM NAME: ADAS Example
FARM ADDRESS: ADAS, Example Farm
YEN Nutrition Membership ID: YN02023

Date ADAS reported offtakes: 06 June 2024

Further information can be found on the YEN Nutrition website: www.yen.adas.co.uk/projects/yen-nutrition

Please make any further enquiries to: yen@adas.co.uk

YEN Dynamic Benchmarking is now available from the YEN members area: www.yen.adas.co.uk/dashboard





Welcome to YEN Nutrition

Your grain samples, field data, harvest data & payment enable us to provide you with three reports:

1. This **Offtake Report** ... to guide maintenance of soil P, K, etc.
2. A **Benchmarking Report** (in Nov.) to diagnose shortfalls & surpluses
3. A **Season Summary** (in March) ... with overall lessons.

This is your **Offtake Report** which contains

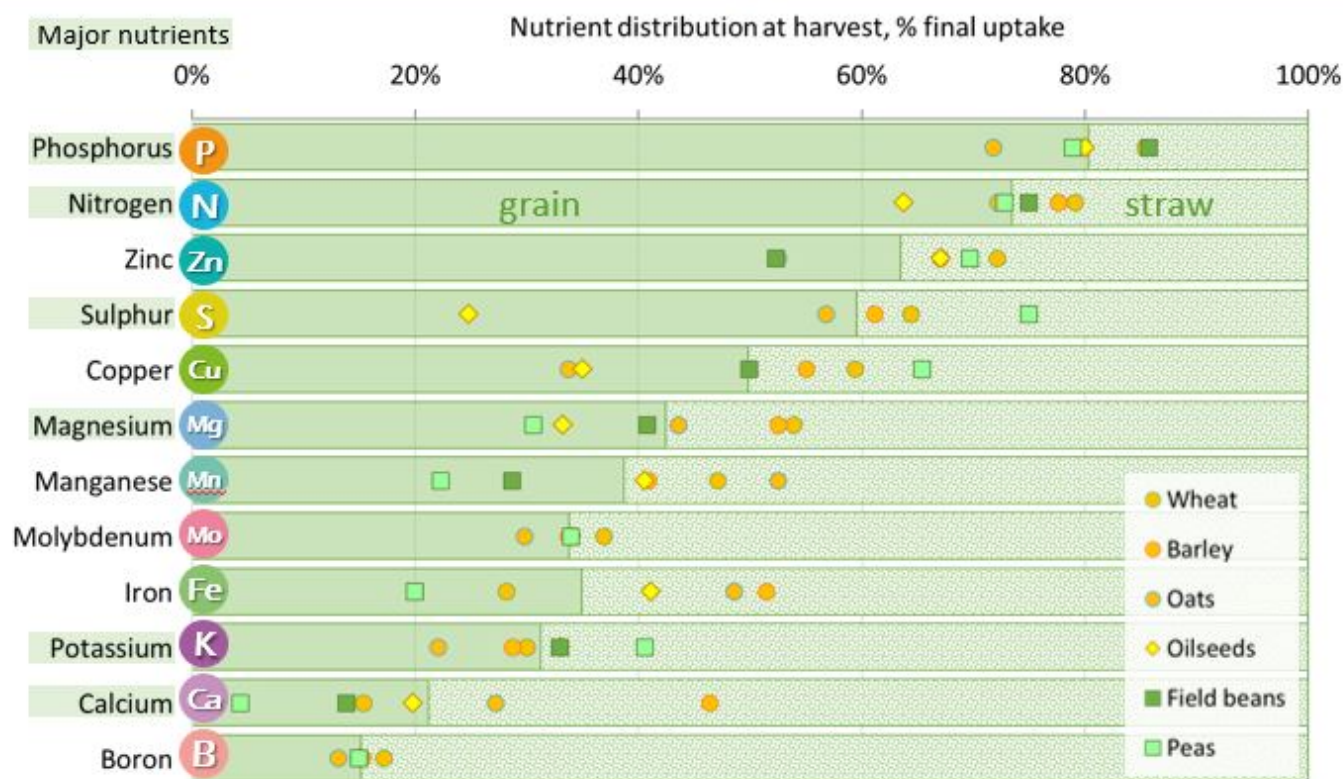
- **Offtakes** of all macro-nutrients ... on Page 3
- **Total Capture** of each micro-nutrient ... on Page 4, and
- **Grain analyses**, as reported by your lab ... on Page 5.

NUTRIENT OFFTAKES explained ...

To maintain soil fertility of cropped land at minimum cost, nutrient removals, whether in grain or straw, must be known accurately. Multiplying yields by grain nutrient levels gives exact offtakes in grain.

If straw was removed (and not analysed) we can estimate straw nutrient removals from your grain analyses by assuming average partitioning of each nutrient to straw according to crop type as shown below. (Bars show overall average partitioning – points show partitioning for each crop type). Crops generally hold most of their N & P in grain but most K in straw.

NB: For minor cereals (rye & triticale) we assumed nutrient partitioning to be as for wheat, all oilseeds we assumed to be as in oilseed rape, and all pulses other than peas we assumed to be as in field beans.





Offtakes of Macro-Nutrients... to help maintain soil nutrient status...

Crop nutrient offtakes less nutrient applications 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. The table below shows nutrient offtakes for each of your crops, calculated from grain nutrient concentrations (from the lab – see last table), grain yields and straw usage. Any soil with an index less than is required to sustain intended crop growth (red & orange cells below) will need nutrient applications larger than were taken off by the last crop.

KEY to RB209 (& SAC)¹ soil levels:

Index 0 (VLow) apply more than off-take	Index 1 (Low) at least replace off-take	Index 2 (Mod.-) replace offtake	Index 2+ (Mod.+) replace offtake	Index 3 (High) monitor	Index >=4 (VHigh) run-down & monitor
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¹Soil analysis and interpretation in England, Wales and Northern Ireland generally use RB209 methods whereas these differ in Scotland and are defined by SAC. RB209 and SAC methods both have the same aims but are not directly convertible. For further information see the FAQ section of the YEN Nutrition website.

Sample Name	Crop type	Yield t/ha	Straw fate	Soil levels, mg/l			Offtakes in grain and straw, kg/ha					
				P	K	Mg	N	P ₂ O ₅	K ₂ O	SO ₃	MgO	Ca
Field 1	Winter Wheat	7.4	Removed	61	60	153	127	53	73	21	14	9
Field 2	Winter Barley	8.5	Removed	10	79	29	170	51	76	28	15	6
Field 3	Spring Beans	4.7	Returned	21	409	188	166	44	57	14	8	4
Field 4	Spring Barley	4.7	Removed	56	110	26	95	36	45	12	11	4
Field 5	Oilseed Rape	5.2	Returned	54	193	60	145	79	44	40	19	26
Field 6	Spring Oats	6.8	Returned	20	140	85	139	56	41	25	11	6





Capture of Micro-Nutrients...to justify nutrient applications...

Crops only need to capture small quantities of micro-nutrients. On most land, natural weathering of minerals, mineralisation of organic matter and normal rooting provide sufficient of each micro-nutrient to support uninhibited growth of each crop and high yields year-after-year. However, many growers apply additional micro-nutrients to their crops. Total capture of each micro-nutrient by each crop is estimated below, to compare with the quantities of each micro-nutrient applied.

Shortfalls in macro- and micro-nutrient capture (or excesses of N) are best diagnosed from grain nutrient concentrations, shown on the next page.

Nutrient capture in all above-ground biomass, g/ha								
Sample Name	Crop type	Yield t/ha	Fe	Mn	Zn	Cu	B	Mo
Field 1	Winter Wheat	7.4	666	320	147	46	14	4
Field 2	Winter Barley	8.5	870	655	251	68	99	19
Field 3	Spring Beans	4.7	1055	163	363	117	180	36
Field 4	Spring Barley	4.7	320	128	157	21	7	28
Field 5	Oilseed Rape	5.2	740	469	206	36	282	5
Field 6	Spring Oats	6.8	1249	340	358	95	49	118





Grain Nutrient Concentrations... as received from the lab

Below are your nutrient concentrations in grain dry matter as received from your chosen Lab (NRM). Your **Benchmarking Report** in November will show in more detail how each nutrient level compared to all other samples of this crop type analysed **from this season**. Note that you can also now assess your data using **YEN Dynamic Benchmarking** available from the member's area on the [YEN website here](#).

KEY to nutrient concentrations:

Low: Grain concentration is less than 25% of all previous YEN results for this crop type¹

Grain nutrient concentration not low (or high for N)

High: For grain N, the value is more than 75% of all previous YEN results for this crop type²

Field	Crop	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
Field 1	Winter Wheat	1.79	0.34	0.45	0.11	0.10	0.04	30	24	17	4.3	0.4	0.2
Field 2	Winter Barley	2.06	0.27	0.39	0.12	0.09	0.05	62	37	23	5.2	2.1	0.9
Field 3	Spring Beans	4.12	0.47	1.18	0.14	0.12	0.09	52	12	47	14.4	6.7	3.0
Field 4	Spring Barley	2.08	0.35	0.42	0.09	0.11	0.06	41	13	26	2.9	0.3	2.4
Field 5	Oilseed Rape	3.06	0.73	0.77	0.34	0.24	0.54	64	40	29	2.7	9.0	0.4
Field 6	Spring Oats	2.41	0.42	0.59	0.17	0.12	0.10	105	31	33	5.6	1.1	6.1

¹We only know a few critical values, so this year we are using YEN-low values (i.e. low quartiles from all crops of this type entered in all YENs since measurements began in 2016) as 'thresholds of concern' for all nutrients in all crops. We find YEN-low values to be very similar to the critical thresholds we have for N, P, S and Mn in wheat, as well as to less certain critical values of K, Mg, Zn & Cu, so we are using these YEN-low values instead of 'Critical values' for all nutrients in all crop types.

²% protein is estimated from % N, as N x 5.7 for cereals or N x 6.25 for oilseeds & pulses. Grain N% is variety-dependent; variety norms for grain N% of cereal species are best taken from the average protein (or N) concentrations reported in the AHDB Recommended Lists. A difference of 0.2% in grain N from the norm relates approximately to a difference from optimal N supply of 60 kg/ha.



Independently analysed by NRM, a division of Cawood Scientific Ltd, Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS Tel +44 (0) 1344 886338 Fax + 44 (0) 1344 890972. E-Mail enquiries@nrm.uk.com Web www.nrm.uk.com Registered in England No. 2577148. Registered office: Coopers Bridge, Braziers Lane, Bracknell, Berkshire RG42 6NS

