Collection of fertiliser data on farms in England

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Overview

- Fertiliser module

    - Why collecting data

    - Questions asked

    - Initial results

    - Future

Why collect fertiliser data in the FBS

- Provides important data needed to estimate the environmental footprint of farming.

- Enables farms to benchmark their environmental performance as well as their financial performance.

- Meets Farm Accountancy Data Network (FADN) requirements for data on quantities of manufactured fertiliser.

Who has the data been collected from?

- The module covered:
  - All the main farm types except horticulture.
  - Eligible specialist pigs and specialist poultry farms were restricted to those businesses that farm land on which they can spread manure and/or slurry.
- A sample of 975 farms was achieved in both 2012/13 and 2013/14
- The sample of farms from which data is collected will increase over time.

	England
2014/15 FBS (2014 FADN)	950
2015/16 FBS (2015 FADN)	1200
2016/17 FBS (2016 FADN)	1300
2017/18 FBS (2017 FADN)	1500

Qualitative data collected

Six general questions:

- Use of precision farming techniques
- Use of soil nutrient software packages
- Inclusion of clover/legumes in grass swards
- Use of green manures
- Adjustments to application rates for use of clover/legumes or green manures
- Amount of UAA subject to restricted fertiliser applications

Inorganic fertiliser data

- Researchers already collect financial data on fertilisers

- Need to request specific product and volume data where that isn't already readily available

- Use look up tables to calculate the quantities of N, P & K , currently have around 80 products covering straight and compound fertilisers, continually updated

- Carry forward closing valuations from previous year. On new farms have to ask additional questions to collect this information.

Organic fertiliser data

- Based on average numbers of livestock

- Researchers collect data on:
    - System of housing (loose housing/cubicles/kennels)
    - FYM or slurry based
    - % of time housed
    - % of slurry/FYM exported off farm
    - Whether manure used direct from housing or stored
    - Method of application (airborne, surface, sub-surface)
    - Coefficients hard wired into electronic version to calculate N, P & K

Organic fertiliser data – recording form

|	System of housing	% of time housed (a)	% of manure exported off farm (b)	Manure spread fresh or "aged" (c)	Method of application (d)
Dairy cows	Loose housed (Farmyard manure)				
	Cubicles and cow kennels (slurry based)				
	Cubicles and cow kennels (Farmyard manure based)				

Final data received by Defra

	Item Code	Missing Data Code	Q1 N	Q2 P	Q3 K	Q4	Q5	Q6
			1	2	3	4	5	6
Fertcalc completion data	100	0						
General question responses	95	0						
Total NP and K per farm	96	0						
NP and K per hectare[a]	97	0						
Organic NP and K per farm	98	0						
of which purchased	99	0						
Inorganic NP and K per farm	105	0						
FYM/Slurry (Home produced/imported)	101	0						
Digestate from on-farm anaerobic digestion	103	0						
Digestate from off-farm anaerobic digestion	104	0						

(a) Based on the farmed area.

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Provisional results: Precision Farming

Proportion of farms carrying out precision farming techniques (i.e. soil mapping and the use of satellite technology to guide fertiliser applications)
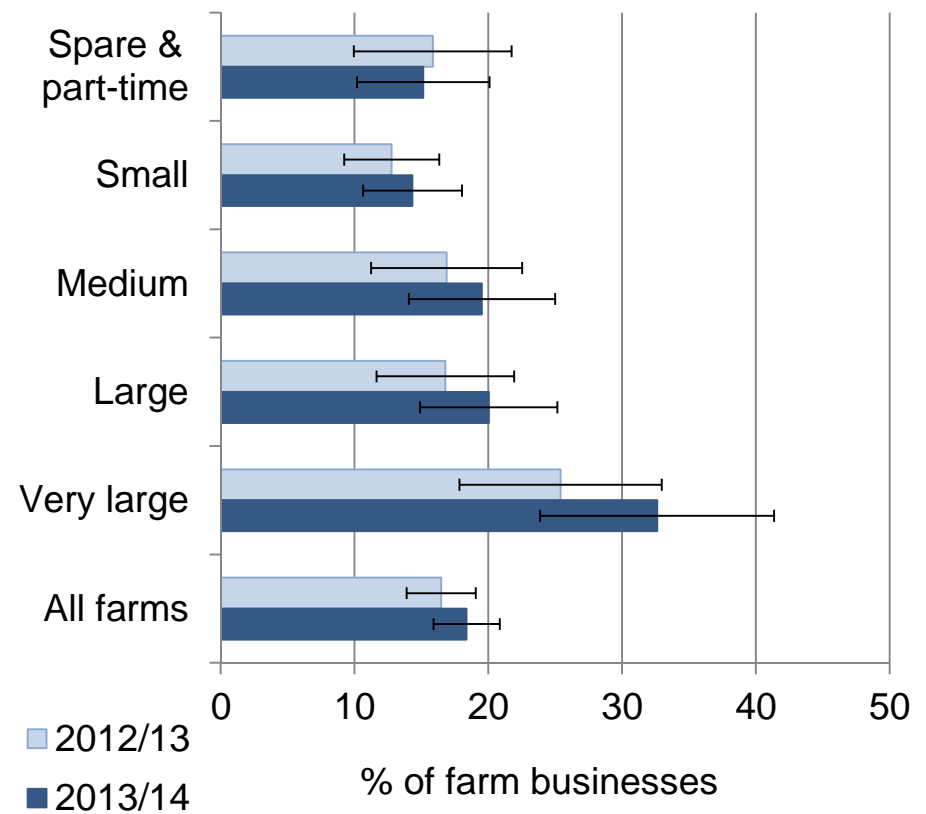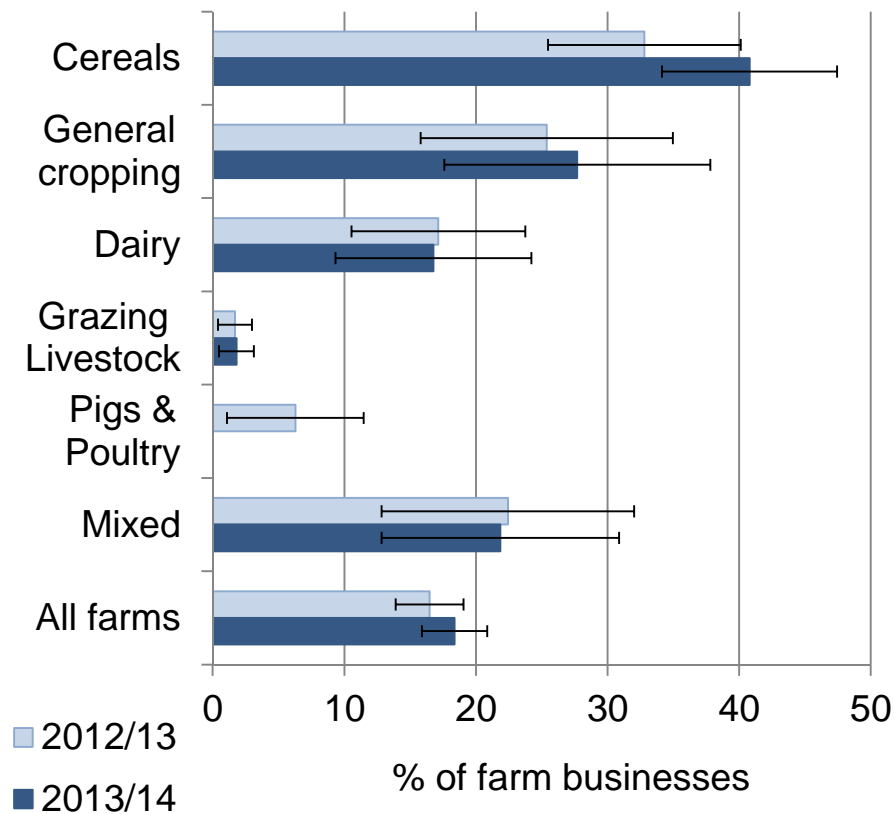
Provisional results: Use of soil nutrient software

Do you use soil nutrient software packages to help determine fertiliser applications?

	Percentage of farm businesses (%)		95% Confidence Interval (%)	
	2012/13	**2013/14**	**2012/13**	**2013/14**
Yes	22	23	±3	±3
No	78	77	±3	±3

Based on 975 responses in each year

**Record keeping methods – British Survey of Fertiliser Practice
% of farms using a computer program (England)**

|	Percentage of farm businesses (%)	
	2012	**2013**
Yes – man. fertilisers	28	25
Yes – organic manures	22	23

Results: Clover/legumes in grass swards

Do you include clover/legumes in your grass swards?

	Percentage of farm businesses (%)		95% Confidence Interval (%)	
	2012/13	**2013/14**	**2012/13**	**2013/14**
Yes	52	52	±4	±4
No	38	37	±4	±4
Not applicable	10	11	±3	±3

Includes only farms with temporary and/or permanent grass (excl. rough grazing)
Based on 847 responses in 2012/13 and 819 in 2013/14
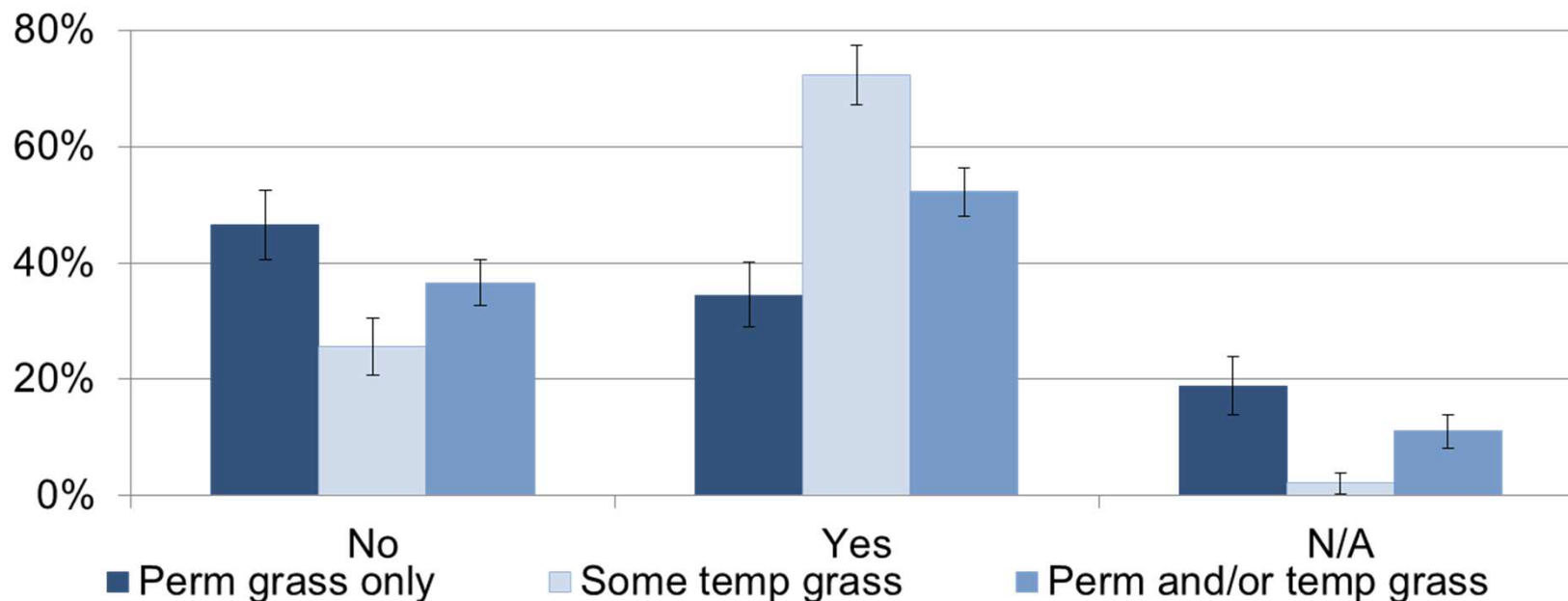
Fertiliser applications

- Volumes of manufactured N, P_2O_5 and K_2O *used.*

- Volumes of organic N, P_2O_5 and K_2O *available.*

- Organic volumes were separated into:

  - FYM/slurry

  - On/off-farm anaerobic digestates.

- FYM/slurry data are calculated using livestock numbers and conversion coefficients

- Application volume data is at the farm level (compared to sown area of individual crops in the BSFP)

Manufactured fertiliser applications: Provisional results

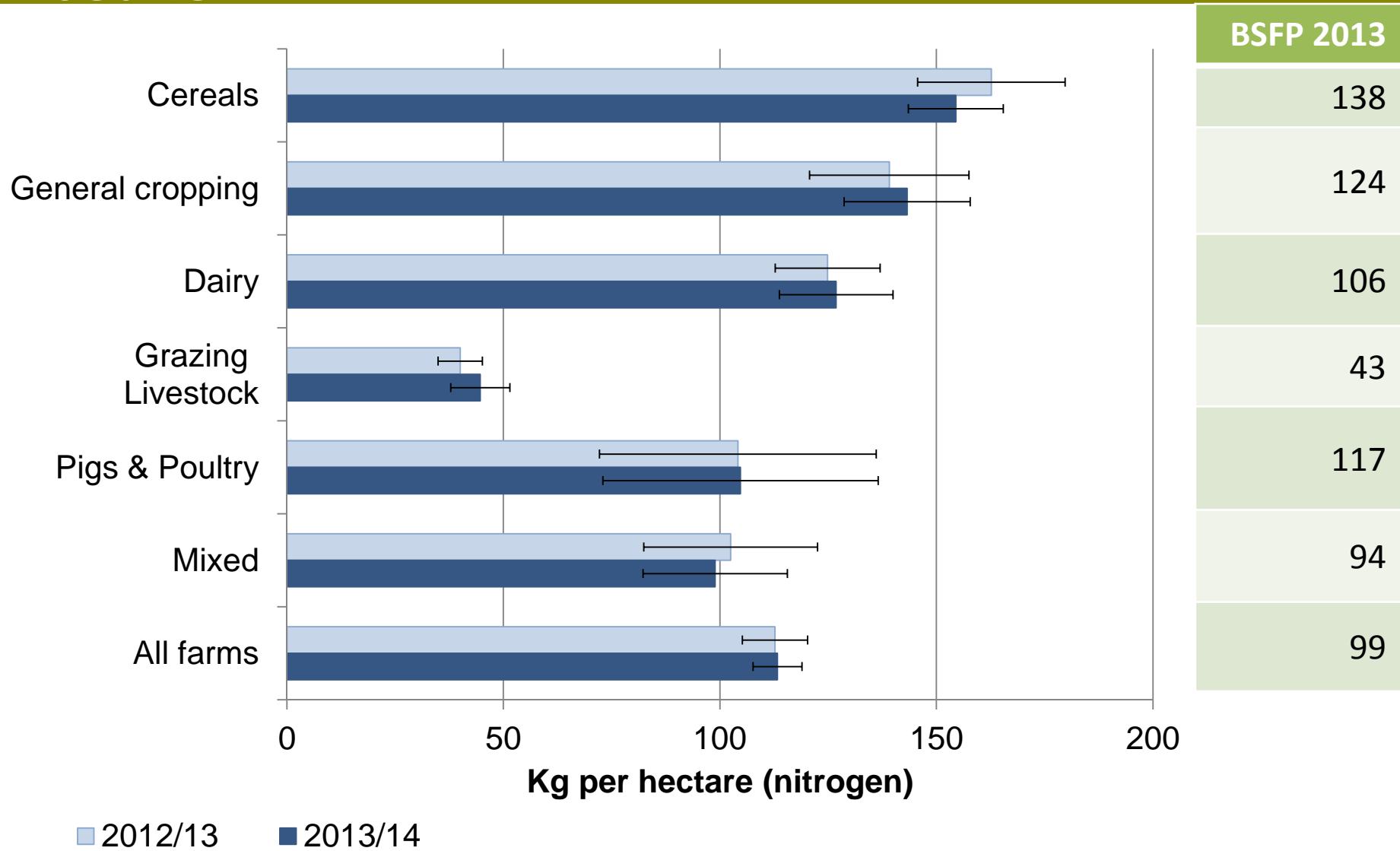|	Overall Application rates (kg per hectare)		95% Confidence Interval (kg per hectare)	
	2012/13	2013/14	2012/13	2013/14
N	113	113	± 8	± 6
P_2O_5	20	20	± 3	± 2
K_2O	25	25	± 4	± 3

Based on 975 responses in each year

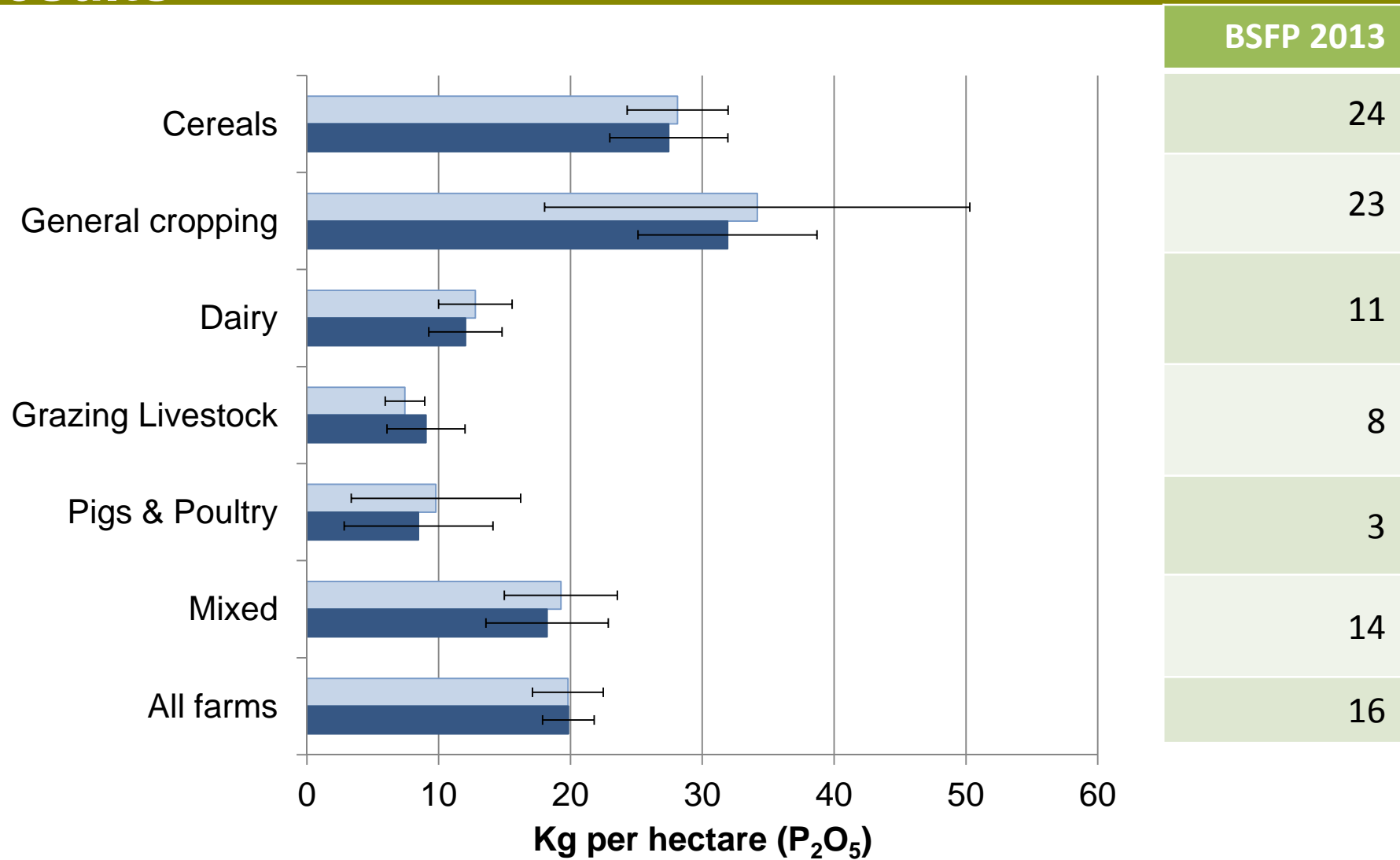Rates are shown per hectare of farmed area (excluding rough grazing)

Overall application rates all crops and grass – British Survey of Fertiliser Practice (England)

	Overall Application rates (kg per hectare)	
	2012	2013
N	102	99
P_2O_5	16	16
K_2O	22	23

Manufactured fertiliser applications: Provisional results

	BSFP 2013
Cereals	138
General cropping	124
Dairy	106
Grazing Livestock	43
Pigs & Poultry	117
Mixed	94
All farms	99

Kg per hectare (nitrogen)

■ 2012/13 ■ 2013/14

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Manufactured fertiliser applications: Provisional results

Kg per hectare (P_2O_5)

Legend: 2012/13, 2013/14

BSFP 2013	
Cereals	24
General cropping	23
Dairy	11
Grazing Livestock	8
Pigs & Poultry	3
Mixed	14
All farms	16

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Manufactured fertiliser applications: Provisional results

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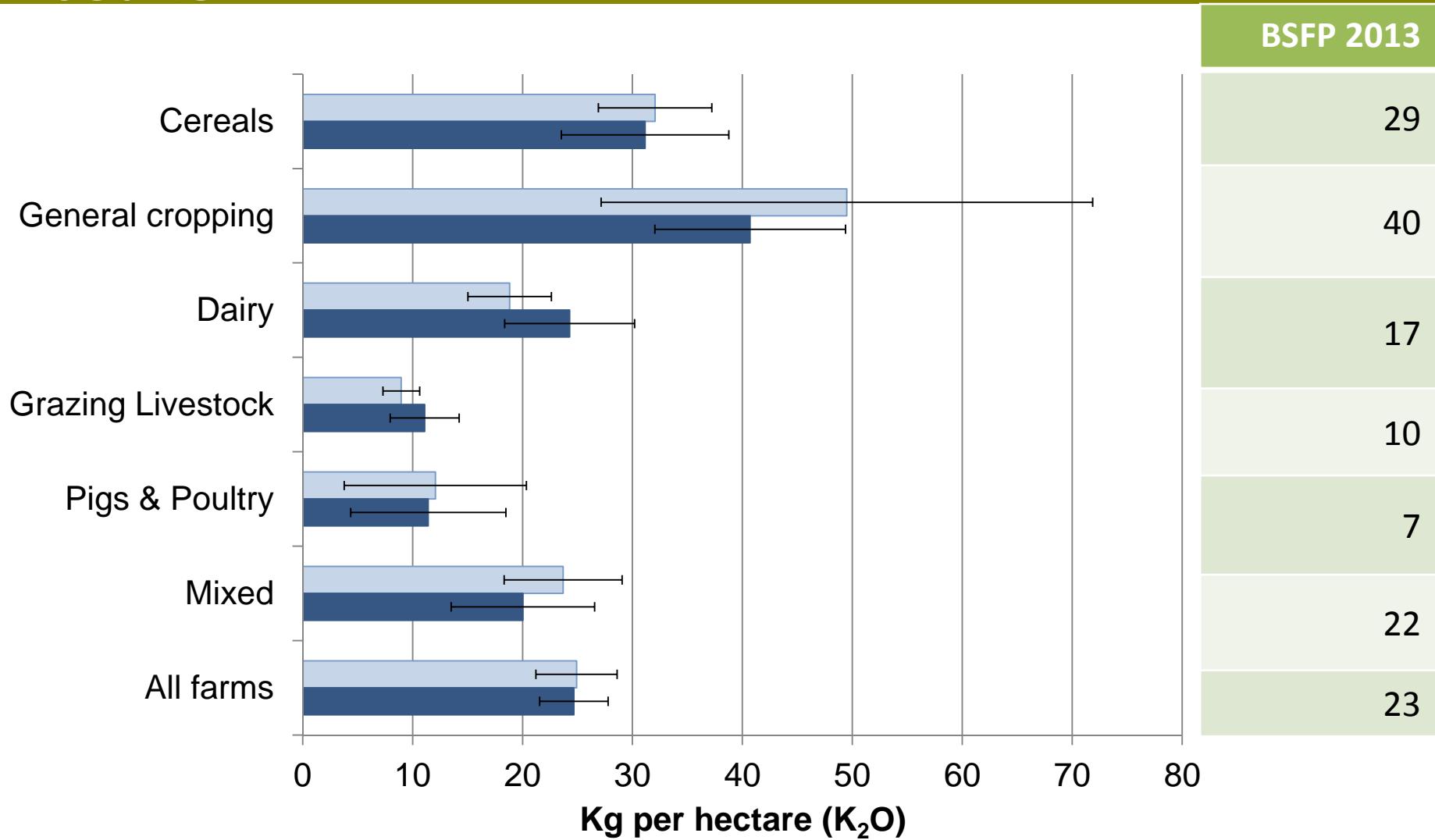
Experience and lessons learnt

- Organic manures have thrown up some unexpected results which are being investigated
- Data validation has been improved following initial analysis e.g. incorrect codes not corresponding with data in rest of form
- Will add another option for organic farms so that we can tell whether it is a completed return but no fertiliser used rather than missing data

Future

- The sample of farms from which data is collected will increase over time.

- Extended to more complicated farms e.g. horticulture

- Reviewing organic coefficients.

- For the 2014/15 FBS method of applying FYM and slurry will be provided to Defra

- Wider uses of data?