

Efficient Use of Poultry Manure for Cereal Production

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Key topics I will cover

- Nutrient content of poultry manure
- Trial results in spring barley in 2015 & 2016
- How to use poultry manure most efficiently
- Potential cost savings

What nutrients does poultry manure contain ?

Depends on dry matter % and type (layers v broilers)

Total Nutrient Content of Hen Layer Manure by Analysis

Nutrient	N	P	K	S	Mg	Ca	Mn*	Zn*	Cu*	DM %
kg/ton or grams/ton	35 ¹	6.8	17.5	4.5	1.2	39.2	317	225	22	89
kg/ton or grams/ton	34 ¹	9.9	20	4.2	5.4	34	363	344	18.7	87

¹ The N in poultry manures is deemed to be 50% available. Therefore ~17kgN/ton is available for crop uptake during the growing season.

Background to the poultry manure trial work

- Farmers locally were using poultry manure in different ways
- Wanted to examine nitrogen fertiliser replacement value (NFRV)
- How could we integrate poultry manure into chemical fertiliser programmes

Setting up the trials: What did it involve ?





GAIN
EQUINE

G
EQUINE

Sun





0-6-27+1%Mg+4%S+3%Ca+B

EC FERTILISER

PK (Ca, Mg, S) Fertiliser Blend with Micronutrient B

0 - 6 - 27 (3 : 1 : 4)

Phosphorus (P)

Soluble in neutral ammonium citrate and water 6.0 %

Soluble in water 4.8 %

Potassium (K) 27.0 %

Soluble in water 27.0 %

Calcium (Ca) 3.0 %

Soluble in water 3.0 %

Total Magnesium (Mg) 1.0 %

Magnesium Oxide Soluble in water 1.0 %

Sulphur (S) 4.0 %

Sulphur (S) soluble in water 4.00 %

Contains Wolftrax B.





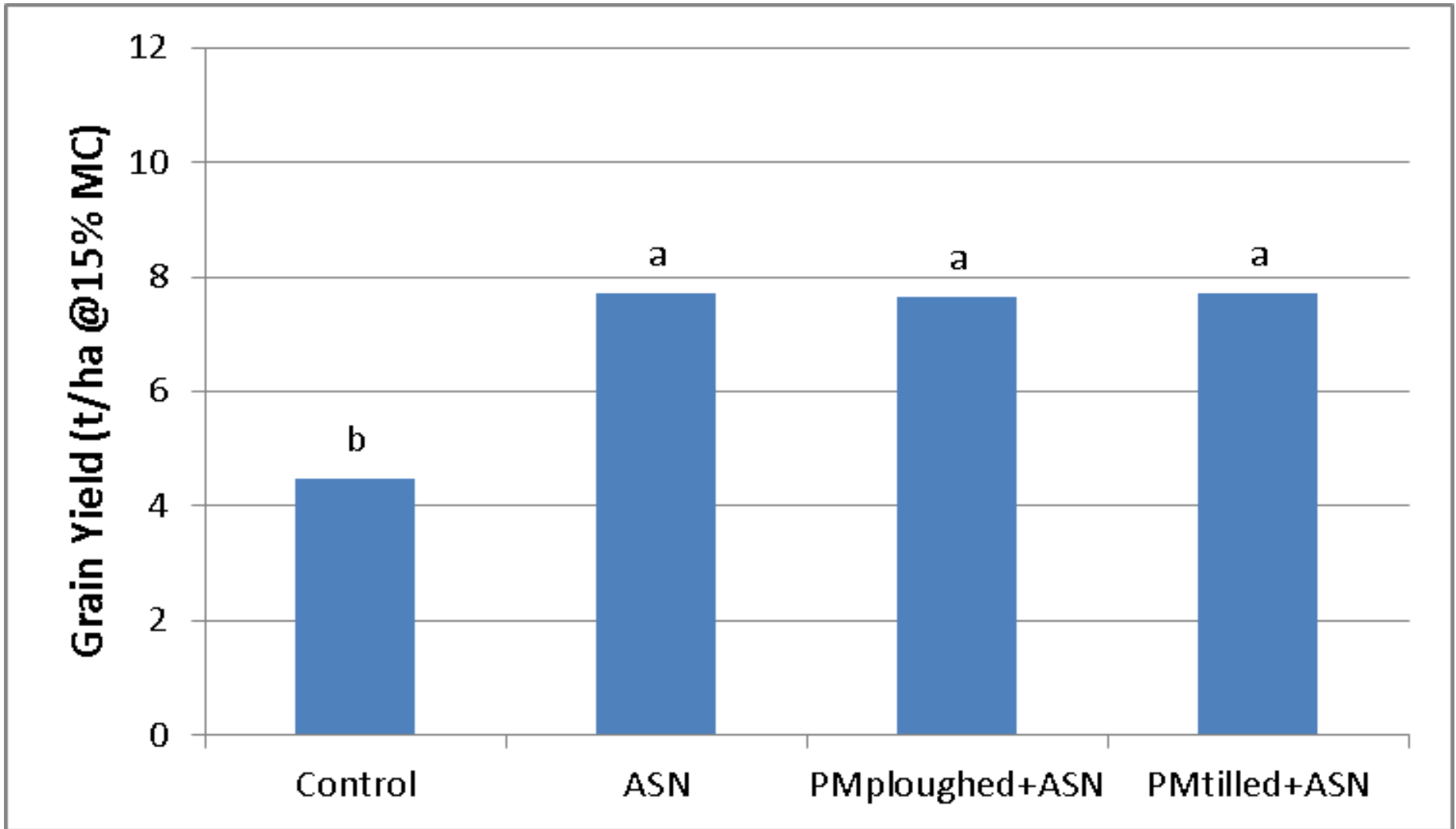


Poultry Manure Trial 2015

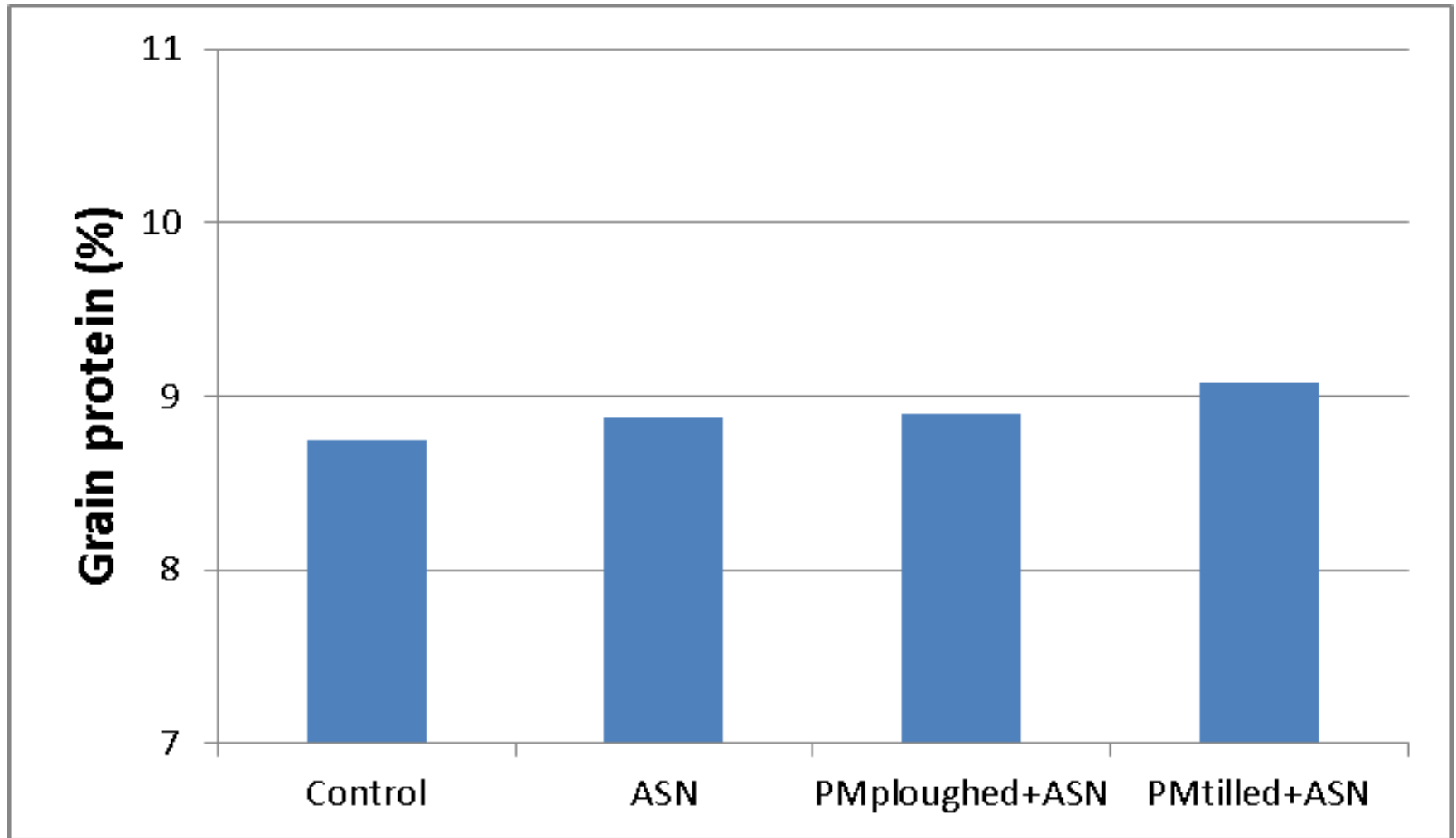
- Looking at chemical N replacement value
- Ploughed down vs surface tilled



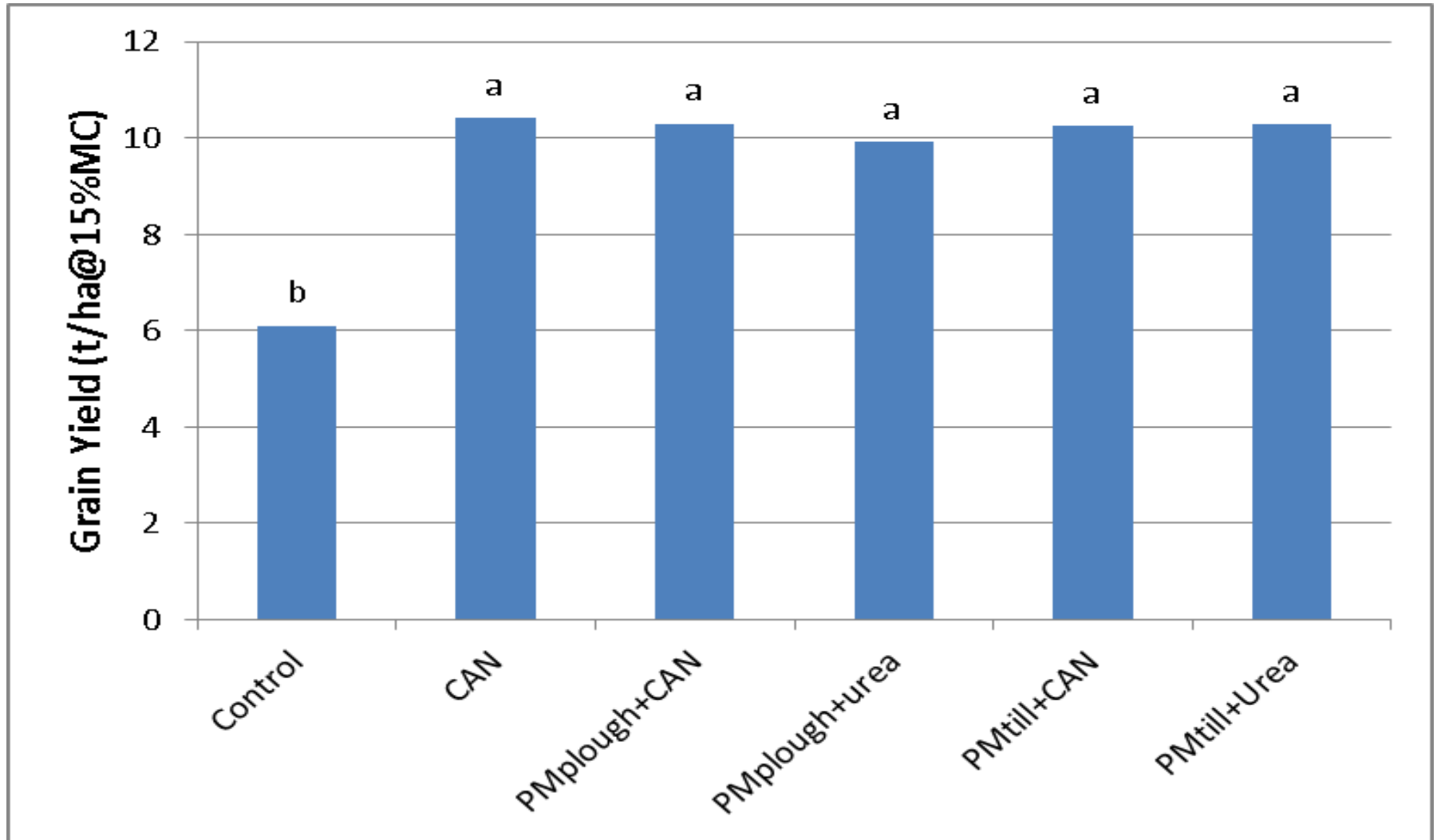
2015 Grain Yield (150kg N/ha)



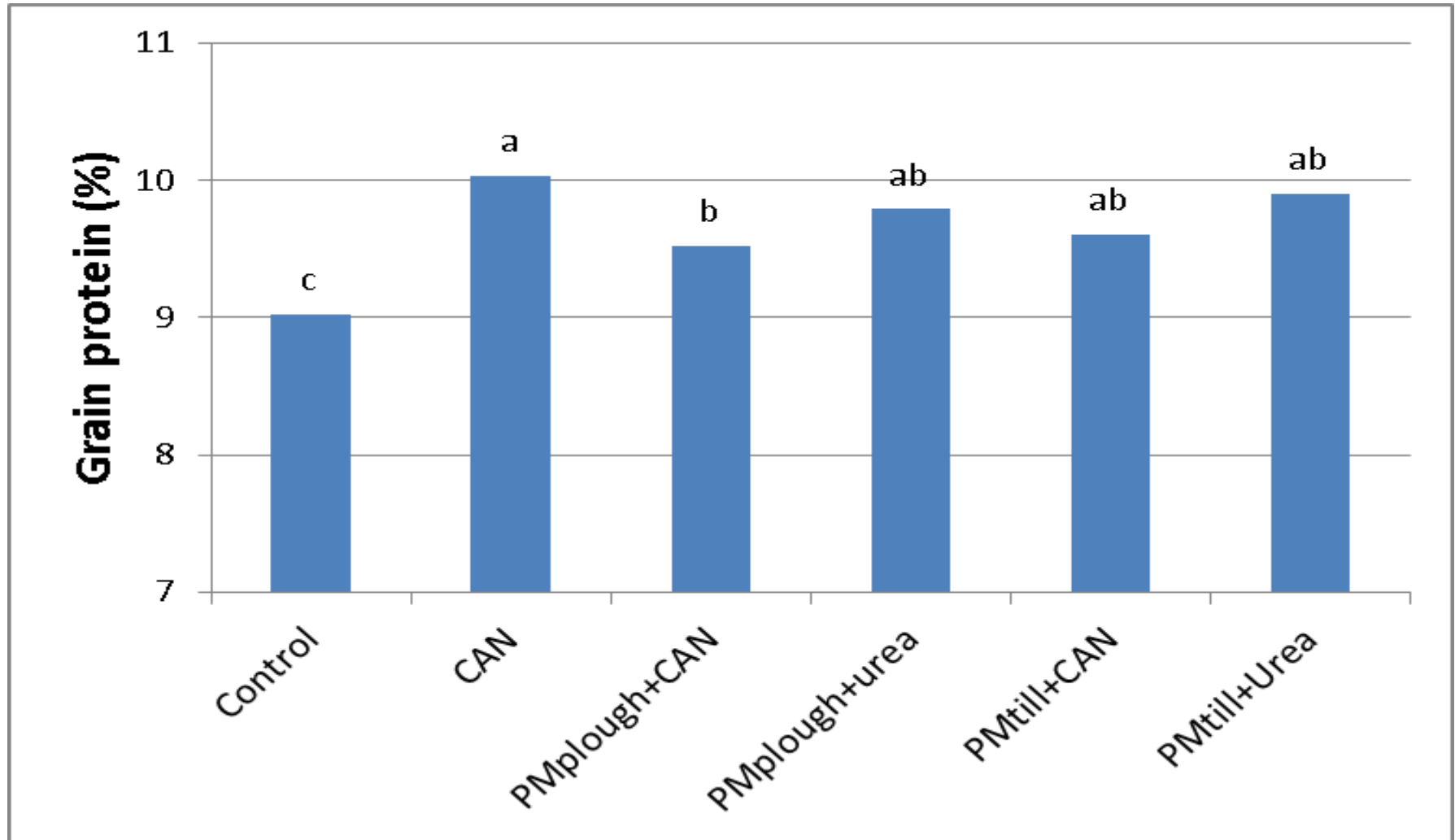
2015 Grain Protein (150kg N/ha)



2016 Grain Yield (150kg N/ha)



2016 Grain Protein (150kg N/ha)



Where best to use poultry manure ?

- Spring Cereals
- Spring Oilseed Rape
- Winter Oilseed Rape (Not more than 50kg N/ha)
- Maize
- Beet
- Potatoes

Avoid using for winter cereals

Poultry manure to winter wheat – pollution swopping!

Winter wheat	Autumn	Incorporation	High loss	Nitrate leaching ☹️
Winter wheat	Spring	Surface spread	High loss	Ammonia volatilisation ☹️
Spring barley	Spring	Incorporation	Low loss	😊😊😊😊

Source: SEGES, Denmark

Avoid excessive rates of poultry manure

Poultry Manure @
5.7t/ha (2.3t/ac)



Poultry Manure @
11.4t/ha (4.6 t/ac)



Potential savings by using poultry manure

Fertiliser programme costs

Fertiliser Programme	N (kg/ha)	P (kg/ha)	K (kg/ha)	Cost (€/ha)
4.27 t/ha PM (68kg N) + 82 kg N/ha (Urea)	150	42	85	163
420 kg 10-10-20/ha + 108 kg N/ha (CAN)	150	42	84	225

Note: Fertiliser costs Urea €320/t, CAN €195/ton, 10-10-20 €350/ton and poultry manure €25/ton (including spreading charge)

Additional Benefits ??? Calcium, Sulphur, Trace Elements, Organic Matter

Collaboration



Collaboration



Farmer



Research
(Soils)



Research
(Crops)



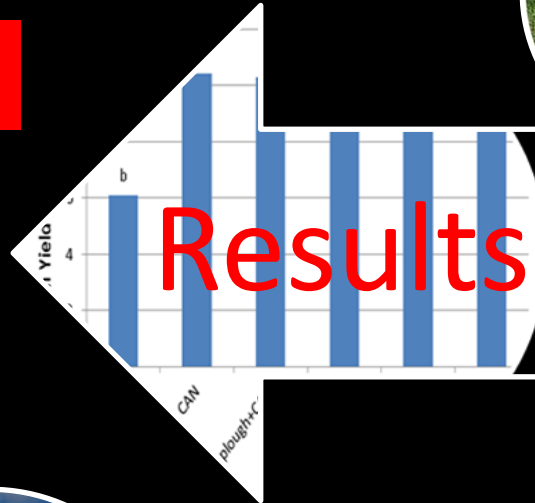
Specialist



Adviser



Knowledge Transfer





Thanks for
your attention!