

The potential feed value of grain tailings for poultry

Problem

Cereals sold for human or livestock feed are cleaned to remove weed seeds and broken grains to satisfy mill standards. Removal of weed seeds from seed crops is also essential to minimise spread of weeds. In addition, the inclusion of small grains leads to financial penalties. These 'tailings' are often composted, burnt or fed to livestock. The potential to utilise tailings as a feed source can reduce production costs and waste.

Solution

A blended sample of grains, including heritage varieties, was collected from an organic farm. Grain samples and tailings after seed cleaning were tested at an independent lab for nutritional content including amino acid content

Benefits

Small grains, broken grains and weed seeds are a waste product which can be utilised as a feed stuff. The weed seeds have the potential to supply different amino acids and minerals.

Practical recommendation

The sample of tailings tested contained Ryegrass (*Lolium* spp.), clover (*Trifolium* spp.), charlock (*Sinapsis*) and dock (*Rumex*) seeds as well as small and damaged grains as seen in figure 1.



Figure 1: Tested sample of tailings. Photo M Lea

Applicability box

Theme

Pigs, Broilers, Layers, Feeding and ration planning, Processing and handling of harvested feed

Context

Based on UK conditions but applicable anywhere

Application time

All year

Required time

Treatment as part of standard arable or mixed on-farm practice

Period of impact

Grain cleaning can take place to suit system, at grain harvest, prior to grain sale, or as tailings are required for feed

Equipment

Seed cleaner equipment and additional storage needed for tailings

Best in

Suitable for all livestock types but best suited for free range poultry with a varied diet

The nutritional content of the grains and tailings are shown in Table 1. Reduction in Starch levels are countered by higher levels of sugars due to harvesting weeds before maturity. Higher Oil levels will be due to higher level in weed seeds, some of which were oilseed types such as charlock (*Sinapis Arvensis* L).

Increased Ash and Neutral Detergent Fibre will potentially reduce intakes and is due to the presence of dust, husks and straw from the grain.

Table 1: Feed analysis results of clean grain and tailings

	clean kgDM	Tailings KgDM	Difference
Pig DE MJ/kg	19.98	19.61	-2.17
Poultry ME MJ/kg	14.72	15.08	2.87
Neutral Detergent Fibre %	9.70	15.31	67.67
Crude Protein %(N x 6.25) (Dumas)	12.97	14.97	18.00
Ash %	1.52	2.67	88.42
Total Oil (Oil B) %	2.58	8.13	251.15
Sugar (as Sucrose) %	2.66	2.74	3.26
Starch %	68.57	57.89	-18.20

The samples were also tested for amino acid profiles and, in the tailings, there was an increase of all amino acids tested except Glutamine and Proline, as shown in Figure 2.

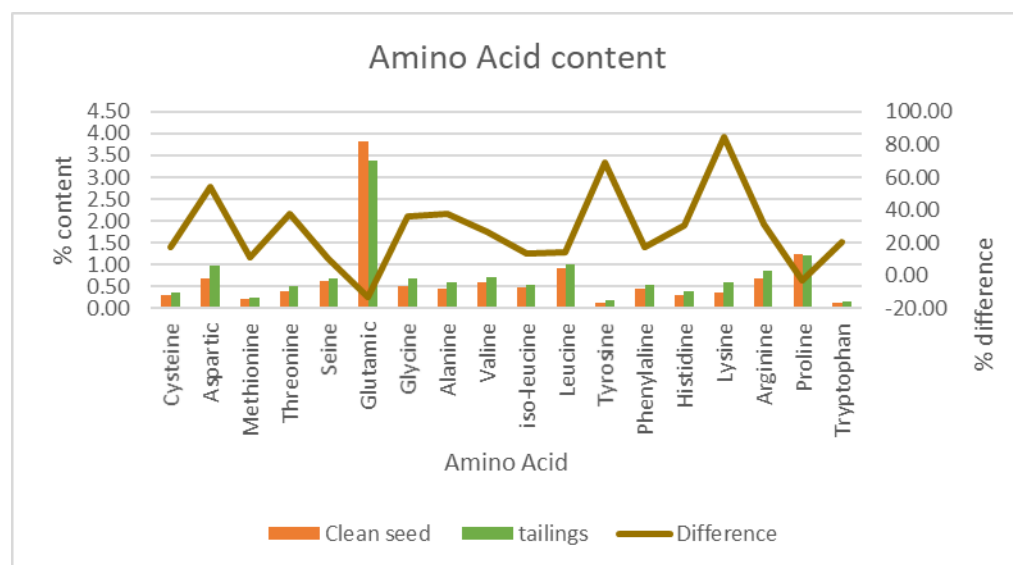


Figure 2: Amino acid levels in grain samples.

Weed seed type will influence final feed value, and care must also be taken to ensure that any seeds which are toxic to poultry are removed prior to harvest. There is also a risk that weeds can be spread as a result of this practice and so milling may be beneficial.

In conclusion, there is an increased feed value in tailings, compared to clean grains, which could be utilised as a local, organic feed by poultry farmers. Other research has shown that there is no reduction in feed value from small, low bushel or specific weight grain, and so this offers an advantage to farmers who are able to clean grain prior to selling.

Further information

Video

- Check the video "[The potential feed value of grain tailings for poultry](#)".

Further reading

- Miller, H., Wilkinson, J., McCracken, K., Knox, A., McNab, J., Rose, P. (2001): Project Report No. 260 – Nutritional value to farm livestock of wheat of low specific weight. HGCA. https://projectblue.blob.core.windows.net/media/Default/Research%20Papers/Cereals%20and%20Oilseed/260_final_report.pdf

Weblinks

- Check the [Organic Farm Knowledge](#) platform for more practical recommendations.

About this practice abstract and OK-Net EcoFeed

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