

Edited by Ciarán Carroll



Welcome to the February edition of our monthly newsletter.

It's good to see pig prices moving in the right direction (upwards) again! This is on the back of increased demand from processors and retailers, and increased exports. China has become a significant export market for us and the recent reoccurrence of African Swine Fever (ASF) problems there, with subsequent increases in sow and pig culling, means that exports will continue to remain strong. On top of that Germany has cleared out it's backlog of pigs (created by their exclusion from China due to ASF in their wild boar population and Covid-19 problems at processing plants), and they have just received regionalization export approval for Vietnam, with the hope of other countries in South East Asia following suit. All told, it should be good news for pig prices here!

In this edition we have articles which explore alternative sources of environmental enrichment,

and discuss some frequently asked questions relating to legal welfare requirements on pig farms. These topics are timely, with animal welfare being discussed recently in the national media, and Ireland's first Animal Welfare Strategy published this February which you can find later in this newsletter.

The latest episodes in The Pig Edge Podcast focused on improving litters per sow per year, with guest Pat Varley, Research & Development Coordinator with PIC Hermitage.

You can listen to all episodes of The Pig Edge [here](#).

Later in this newsletter there is a call to complete a survey on antibiotic use in farming, thank you in advance for your input.

#### In this issue

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- Some Frequently Asked Questions!

## Alternative Environmental Enrichment Sources

Martyna Lagoda

### Straw as environmental enrichment

Although a domesticated species, the pig retains a number of its natural behaviours, including rooting, driven by its motivation to forage for food. Preventing pigs from performing natural behaviours can result in the development of undesirable stereotypical behaviours, e.g. sham chewing and bar biting. The expression of rooting behaviour can be encouraged by providing pigs with substrates such as straw, which can thus act as a form of environmental enrichment. However, the use of straw on Irish pig farms is quite rare. The most notable reasons for this relate to its costs and biosecurity risks. Straw is a by-product of agriculture, and its price can vary to a great extent. Unless produced on land owned by the pig farmer, high straw prices can often make this substrate inaccessible. Biosecurity risks associated with straw are another factor limiting its use on Irish farms, especially in the current climate, where African swine fever poses a serious threat to the pig industry. Finally, most Irish pig farms make use of fully-slatted concrete floors, with which straw is incompatible, leading to blockages of the associated slurry systems. Consequently, there is a need to find alternative forms of environmental enrichment without the issues associated with straw. Such alternative forms of environmental enrichment should possess the desired characteristics defining their suitability and ability to fulfil the behaviour needs of pigs (Table 1). Hemp, miscanthus, alfalfa, and root crops are potential candidates for use as a source of environmental enrichment for pigs.

### Hemp

Hemp (*Cannabis sativa*) is a high yielding annual fibre crop, producing cellulose, edible proteins, and oils, with the potential to be grown on marginal land. Hemp is often confused with another cultivar of this plant, marijuana. The main difference between the two is the lower tetrahydrocannabinol (THC; psychoactive compound) content of hemp. Despite low THC content, hemp cultivation in Ireland is controlled by the health products regulatory authority (HPRA), requiring a licence. Nonetheless, this plant

grows well in Ireland, and interest in it continues to grow. To date, hemp ropes and pellets have been used as environmental enrichment for pigs. On the other hand, hemp in the form of shiv (chopped up, woody core of the hemp plant; Figure 1) has the potential to replace straw as rooting material. It is more commonly used as bedding for small animals (rodents and birds), but anecdotal evidence of small-scale use as horse and poultry bedding, as well as rooting material for swine, also exists. Based on such evidence, hemp is said to have greater moisture absorbency than wood shavings, is associated with lower dust and odour levels, and is also said to rot fast, turning into good quality compost. Farmers who have used it also state that it requires a less frequent top-up than straw and wood shavings. Moreover, due to the smaller size of hemp shiv particles compared with those of straw, no evidence of problems with blockages of the slurry systems exist. Furthermore, hemp shiv can be used as a novel source of environmental enrichment for pigs in the form of rooting material with success. However, certain shortcomings of hemp must also be considered when deciding on its use as animal bedding/rooting material. For instance, due to organic cultivation and elaborate processing to extract hemp straw from the woody fibre, hemp shiv as bedding for animals is often more expensive than other materials (approximate price of €15 per 20kg bag).



Figure 1 Hemp shiv.

### Miscanthus

*Miscanthus giganteus* is a species of perennial, rhizomatous grass with lignified stems, which resemble bamboo. Miscanthus has very high growth rates, and can thrive on marginal land and

low quality soils. It has a large value in biomass production. The bamboo-like canes of miscanthus are harvested in late winter or early spring, and like hemp fibre, can be used as animal bedding when chopped up (Figure 2). Miscanthus bedding has a low dust content, is non-toxic, and non-poisonous. It breaks down quickly into peat-like material. Due to its high nitrogen content which makes it inhospitable to many microbes, it has a very low pathogen count, making it a suitable bedding material for a range of animals, including horses, cattle, poultry, and small pets. Given its properties, miscanthus could also be a potential source of bedding and environmental enrichment for pigs (approximate price of €7.75 per bale). Moreover, a previous study noted that pigs provided with ensiled miscanthus were interested in the substrate, taking approximately 9 days to rip up the bedding material. Pigs in this study used miscanthus bedding for lying down, but avoided dunging in areas covered by this material. However, due to its structure (and if chopped too roughly), as in the case of straw, miscanthus could prove problematic on fully-slatted floors of pig farms, leading to blockages of the associated slurry systems.



**Figure 2** Pigs on miscanthus. Photo credit: John van der Horn, Jake DeBruyn, OBPC Ag Biomass Day, 2015

### Alfalfa

Alfalfa (*Medicago sativa*), also known as lucerne, is a perennial, clover-like, leguminous plant of the pea family. It is widely grown for hay, pasturage, and silage (Figure 3). It is known for its productivity and quality of herbage. Alfalfa is widely provided

to cattle as a source of nutrients. In the case of pigs, alfalfa can be used as an addition to the diet, as well as a source of bedding/environmental enrichment. It is high in fibre, and contains tannins and saponins which act as anti-nutritional factors capable of reducing the growth rates of young pigs. It is therefore not recommended to provide weaned and growing pigs with alfalfa in their diets. On the other hand, the digestive system of sows is fully developed, with greater capacity, and a more appropriate microbial community in the hindgut to allow for digestion of the alfalfa fibre content. Alfalfa meal can thus be included in the dry sow diet, adding bulk but not calories. This is important, as dry sows are restrictively fed to minimize excessive body weight gain during pregnancy, which results in hunger, frustration and the development of stereotypical behaviours. By providing calorie-free gut-fill, alfalfa can help to prevent the development of stereotypical behaviours resulting from the hunger-associated frustration. Alfalfa hay can also be provided as a source of environmental enrichment to sows, encouraging rooting behaviour. However, studies have shown potential for increased aggression levels among sows when alfalfa hay is provided from a dispenser. This is because alfalfa is an attractive material when provided in this way, leading to increased competition among sows. Although a suitable form of environmental enrichment for sows, alfalfa does not thrive in the Irish climate, requiring warmer conditions. It must therefore be sourced from countries such as Spain, which is consequently associated with extra costs.



**Figure 3** Alfalfa hay bale.

### Root crops

While options such as miscanthus may cause problems on slatted floors, root crops can be a

good alternative source of environmental enrichment for sows on this floor type. The success of root crops as enrichment was shown by several studies. Pigs can be fed, and will consume a wide range of vegetables, including turnips, beets, carrots, and potatoes etc. Consequently, providing sows with edible root crops as a source of environmental enrichment can satisfy the animals' motivation to root and to feed. This in turn satisfies their natural behaviour needs, and can help to reduce the development of stereotypical behaviours, manipulation of pen fittings, pen mates, and consequently, tail-biting. An additional benefit of this type of enrichment is its availability, as many root crops are easily accessible in Ireland at various stages of the year, at a reasonable cost.

#### Further Information

PigProgress 2019: "straw or no straw? That's the questions"

<https://www.pigprogress.net/Piglets/Articles/2019/9/9/Straw-or-no-straw-Thats-the-question-469675E/>

Premier Irish Industrial Hemp Conference 2019

<https://www.teagasc.ie/publications/2019/premier-irish-industrial-hemp-conference-2019.php>

Miscanthus best practice guidelines, Teagasc, AFBI

[https://www.teagasc.ie/media/website/publications/2011/Miscanthus\\_Best\\_Practice\\_Guidelines.pdf](https://www.teagasc.ie/media/website/publications/2011/Miscanthus_Best_Practice_Guidelines.pdf)

Hemp webinar, Barry Caslin, Teagasc

<https://www.teagasc.ie/publications/2021/farm-business-options-webinar---opportunities-for-industrial-hemp-in-irish-agriculture.php>

Environmental enrichment material	Desirable characteristics of pig environmental enrichment				
	Investigable	Manipulable	Chewable	Edible	All-year availability
Hemp	✓	✓	✓	✗	✓
Miscanthus	✓	✓	✓	✓	✓
Alfalfa	✓	✓	✓	✓	✗
Root crops	✓	✓	✓	✓	✓

**Table 1** Desired characteristics defining the suitability and ability of environmental enrichment materials to fulfil the behaviour needs of pigs.



## Some Frequently Asked Questions!

Gerard McCutcheon

I had a number of questions recently from clients in relation to some legal welfare requirements on pig farms. I thought it would be useful to share this information in this newsletter article. This article is not the full legal requirements for the rearing of pigs and I would refer all readers to the references at the end of it for a more complete understanding of the requirements

### What floor area should I allow for my pigs?

The minimum unobstructed floor area for a weaner or finisher pig should be:

Liveweight of pig	Min. Floor Area required (m <sup>2</sup> )	Min. Floor Area required (ft <sup>2</sup> )
10 kg or less	0.15	1.6
>10 kg to 20kg	0.2	2.15
>20 kg to 30kg	0.3	3.2
>30 kg to 50kg	0.4	4.3
>50 kg to 85kg	0.55	5.9
>85 kg to 110kg	0.65	7.0
>110kg	1.0	10.76

### What is the light requirement for growing pigs?

A person keeping pigs in a building must ensure there is a light intensity of 40 lux or more for a continuous period of at least 8 hours in any 24 hour period. (Rule of thumb – sufficient light to read a newspaper in the corner of the pen).

Also pigs kept in buildings must not be kept without an appropriate period of rest from artificial lighting.

### What are the dimensions of concrete slats in pig housing?

Category of pig	Minimum solid rib (mm)	Maximum opening width (mm)
Piglet	50	11
Weaner	50	14
Finisher	80	18
Sow/ Served gilt	80	20

### What are the requirements on feeding?

All pigs shall be fed at least once a day. Where pigs are housed in groups and not fed ad libitum or by automatic feeding system, each pig shall have access to the food at the same time as the others in the group.

All pigs over 2 weeks of age must have permanent access to a sufficient quantity of fresh water.

Where pigs are fed on a rationed feed level to control intake stock keepers should ensure that adequate trough space is provided to ensure that all pigs can receive their allocation.

Weight of pig and recommended trough space per pig:

Liveweight of Pig (kg)	Trough space (cm)
5	10
10	13
15	15
35	20
60	23
90	28
120	30

Ref: FAWAC (2009)

On unrestricted feeding where trough systems are used it is recommended that pigs are allowed the following trough space:

Liveweight of Pig (kg)	Trough space (cm)
Up to 15	0.8
15 to 35	1.0
Over 35	1.2

Ref: FAWAC (2009)

This article covers only a small number of the conditions required to comply with the welfare requirements for rearing pigs. All of the welfare requirements are laid out in the relevant sections of [Statutory Instrument 311 of 2010 \(European Communities Welfare of Farmed Animals Regulations of 2010\)](#). Another very good reference is the [Farm Animal Welfare Advisory Council \(FAWAC\) "Code of Practice for Welfare of Pigs"](#) last published in 2009. These are very good references and should be read by all farmers who rear pigs.

## Survey on Antibiotic Use



### SURVEY ON ANTIBIOTIC USE



We are looking for your views, as an Irish farmer, on the use of antibiotics in farming.

The survey is being carried out by Queen's University Belfast and it is important that we hear the views and opinions of farmers like you.

The survey can be completed online at the following link

<https://www.surveymonkey.com/r/6PSF5PT>

Or if you prefer, we can ring you and do the survey on the telephone, or post out a copy for you to complete at home.

You can get in touch with us on +44 (0)28 9097 4951 or +353-91-845248 or email [c.mckernan@qub.ac.uk](mailto:c.mckernan@qub.ac.uk)

The survey takes 20 minutes and the first 50 pig farmers in Ireland to complete the survey will each receive a €20 One4All voucher as a thank you for your time.

## Zoom Meeting Discussion Groups

Discussion groups may be facilitated over Zoom while Covid restrictions remain in place. This

poster explains how to join a Zoom meeting using your smartphone.



More information for [iphone](#) and [android](#)

## Animal Welfare Strategy

Working together for Animal Welfare - Ireland's Animal Welfare Strategy 2021-2025, was published in February.

Read it here

<https://www.gov.ie/en/publication/12d6a-animal-welfare-strategy/>



For more information visit our website  
[www.teagasc.ie/animals/pigs](http://www.teagasc.ie/animals/pigs)

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