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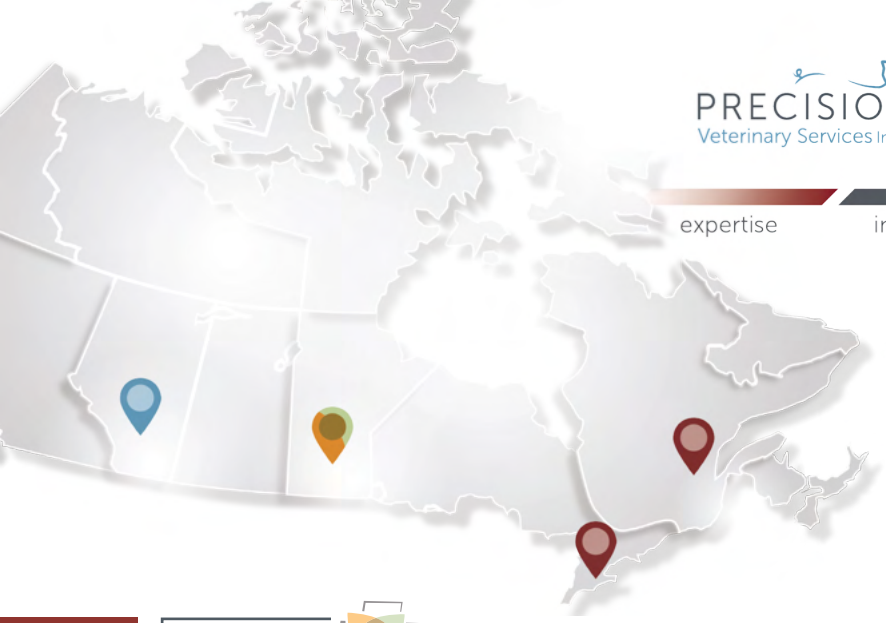

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by Swine Veterinary Partners
April 2023

SHIPPING WEIGHTS: IS HEAVIER ALWAYS BETTER? - PART 2

Cristina Sabau - Swine Production Specialist - PREMIERSHP

In part 1 of this article, we discussed why and how Market Demand, Genetics and Nutrition all influence the optimal shipping weight for a specific farm. In Part 2 of this article, we will look at how Space Allowance and management of space can have an impact on profitability.

Space Allowance

Of the many variables you have control over, the most important to consider when raising pigs to heavy weights is space. A straightforward solution is to add more space, but that is obviously expensive and unlikely in real production, so the real solution is to manage already existing space. The Canadian Pig Care of Practice Code outlines spacing requirements. The "k" value is a mathematical factor that is used in a formula that converts the weight of a pig into the surface area that pig covers on the floor.

TABLE 3

Canadian pig-care-of-practice space allowance recommendation and minimum requirement

Liveweight, kg		100	110	120	130	140	150
Space allowance, ft^2/pig recommendation	k=0.0335	7.78	8.29	8.79	9.27	9.74	10.20
Minimum allowance for end of production (ACA), ft^2/pig	k=0.0280	6.61	7.05	7.47	7.88	8.28	8.67

A study on the "Effect of Space Allowance on Growth Performance and Body Lesions on Grower-Finisher Pigs" had concluded that space allowance had no effect on growth performance, but recorded a high number of body lesions in a lower space allowance setting equal or below 8.40 ft^2/pig and was therefore detrimental to the welfare of pigs. Unfortunately, this study was done on pigs from 10 to 21 weeks of age and up to 100 kg bodyweight, so no data on pigs over that weight.

Another trial done by one of the major producers in Canada resulted in a similar conclusion regarding space allowance. And that by setting a k value of 0.030, one can expect to maximize space utilization without compromising growth rate. This translates to a calculated space allowance of 7.53 ft^2 per shipping pig (110 kg average live pen weight on first pull and 125 kg average shipping weight at close-out). Pen density was calculated based on the average weight of the pen/room at the time of first pull, which is the correct and practical method to calculate space allowance.

A more recent study (2019-2020) on "Effects of space allowance and marketing strategy on growth performance of pigs raised to 165 kg" concluded that growth performance for heavier weights is negatively affected by decreased space allowance (Table 4). The columns on the left represent the performance when animals were pulled out periodically to market (normal management strategy), verse the right where all pigs were marketed at once.

See next page

Summary table on effects of space allowance and marketing strategy on growth performance of pigs raised to 160 kg

	No change in space/pig				Increase space per pig by weight	
Initial floor space, ft²/pig	12.59	10.44	8.83	7.64	7.10	7.64
Final floor space ft²/pig	12.59	10.44	8.83	7.64	10.44	10.44
Marketing events	1	1	1	1	4	3
Initial Av. Weight, kg/pig	22.2	22.1	22.2	22.2	21.8	21.9
ADG, kg	0.93	0.90	0.89	0.87	0.89	0.88
ADFI, kg	2.81	2.68	2.64	2.62	2.56	2.59
FCR	3.02	2.98	2.97	3.01	2.88	2.94
Final Av. Weight, kg/pig 160 days on feed	171.1	167.2	165.5	162.6	160.3	161.7
Total Av. Kg Gained/Pig	148	143	141	139	131	135

TABLE 4

Other factors that will greatly impact pig performance vs. space allowance and density are access to feed and water, climate/season, ventilation, and health status. All these factors need to be optimal and not limiting.

Proper space management is important to reach performance. Crowding pigs is not a long-term solution. If space is limited, a well managed barn can easily become health challenged.

Income and Profit

There are very few times when feed cost outweighs carcass price, though feed price alone will not show the full picture. Generally, to produce 1 kg of carcass in the finisher, you need about 3.5 – 4.0 kg of feed, depending on the farm's feed efficiency (1kg carcass / 0.80 yield * 3.0 FE).

The graph below (Graph 3) is a real-world tool that any producer should build with actual farm data to better visualize where you stand and what can be improved.

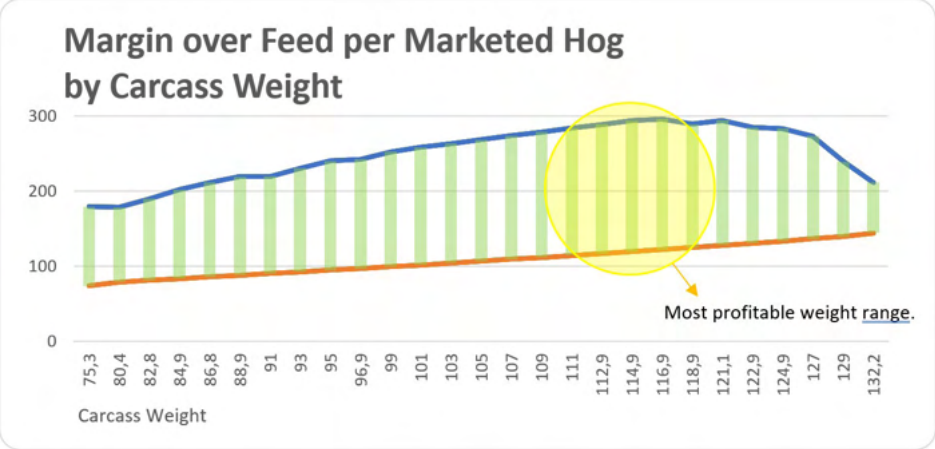
For someone to build a similar graph, they would need at least:

- Farm specific ADFI and ADG to calculate feed efficiency and cost
- Up to date feed cost per tonne
- Farm kills sheet data from the packer for the last year

Other costs to be added for an even more realistic analysis are costs directly influenced by days on feed, like power and/or water, and the risk of losing another pig or two as days to market are prolonged.

Next page is a simplified example to deter-

GRAPH 3



Revenue per hog at different weights
Est. Feed Cost per hog at different weights
The distance between the lines represents margin over feed.

Base Hog Price $229.52 / 100 kg
Feed cost per tonne $350.00
>8,500 hogs shipped

See next page

Assumption:

An 9250 ft² all-in-all-out finisher barn originally built for shipping 1200 market hogs at 120 kg liveweight per batch (Table 5).

mine how heavier weights can influence income.

Comparing revenue per sold hog in the first three columns, it seems selling heavier pigs can bring more money to the table per pig. In contrast, return per year seems to diminish as weights increase. They say, "time is money" and this is exactly what the above table proves. For one, adding 12 kg of carcass takes another 16 days on feed, lowering turnover per year. Secondly, as per the Canadian Pig-Care-of-Practice space allowance recommendation, the number of pigs per batch had to be lowered.

Then, is there a way to achieve higher shipping weights and be profitable?

In the fourth column, both the return per hog and per year have improved by marketing heavier hogs some adjustments:

- **Space allowance at 8.07 ft²**, achievable with good space management. Like having first pigs marketed when the average weight for the pen/room is between 115-120 kg. Sorters provide a good return of investment; it saves time and money provided they do not limit feeder or drinker access.
- **Improving daily gain** by only 20 g will shorten days to market by 6 – optimize nutrition, water intake, feeder design, ventilation, etc.
- **Consult with your nutritionist on how to lower the cost of feed**, especially in the last stage of finishing.
- And finally, though not reflected in the above table, reducing variance to market with most animals being within the desired weight range.

The long-term pattern of increased market weight is expected to continue in the future. Genetic progress allows efficient protein deposition at weights exceeding current production practices. Nutrition knowledge is wide and available to everyone, just as new technology.

Shipping heavier hogs in a profitable way is not for everyone, but possible with

TABLE 5

Effect on profit for shipping at different weights

	Scenario 1	Scenario 2	Scenario 3	**Scenario 4**
k value used to calculate space allowance	0.0335			**0.0300**
Total space available, ft²	9250 ft²			
Initial Weight, kg	20 kg			
Shipping weight	120	135	150	**135**
Space/hog	7.70	8.60	9.46	**8.07**
Hogs	1200	1075	977	**1145**
Carcass	96	108	121.5	**108**
Total gain	100	115	130	**115**
ADG	0.95			**0.97**
FE	2.9	3.0	3.1	**3.0**
Days on feed	105	121	137	**115**
Days to wash	5			
Turnover per year	3.3	2.9	2.6	**3.0**
Feeder pig ($)	$ 60			
Fixed costs per day ($) (utilities, insurance)	$ 65			
Feed cost / Hog (420 CAD/Ton)	$ 133.40	$ 158.70	$ 185.40	**$ 153.70**
Income/hog (2.5 CAD/kg)	$ 240	$ 270	$ 303.80	**$ 270**
Cost/hog	$ 199.40	$ 226.30	$ 254.80	**$ 220.70**
Revenue per sold hog	$ 40.60	$ 43.70	$ 49	**$ 49.30**
Income per year	$ 953,356	$ 840,453	$ 766,002	**$ 913,121**
Cost per year	$ 791,971	$ 704,492	$ 642,529	**$ 746,444**
Yearly return	$ 161,385	$ 135,961	$ 123,474	**$ 166,678**

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Swine Finishing Cost-Return Budget Department of Agricultural Economics — www.agmanager.info Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MERCK Animal Health

THE TRIBUNE

ROTAVIRUS PRESENCE IN SUCKLING PIGLETS IN CANADA

Carol Malgarin, Francisco de Grau and Sylvain Drapeau - Merck Animal Health

Rotavirus (RV) is a well-known virus for its ability to cause diarrhea in pigs and for the economic impact in pork production. Neonatal and suckling piglets are especially affected, as older animals become resistant to the viral disease by developing post-exposure immunity to the virus coupled to maturation of the gut and of their overall immunity (1). Three groups of RV have been identified as important pathogens for the swine industry, groups A, B, and C (1). Each of these three groups can be further identified by their type, e.g., RV A G9 (RotaVirus group A type G9). A previous study has summarized three years of diagnostic reports involving diarrhea presentation in Ontario (ON), during the lactation phase (2). At that study, RV A was detected in 69% of the cases of diarrhea in suckling piglets, RV C in 37% of the cases, and RV B in 13% of the cases. Through the Sequivity vaccine platform, our group was able to identify different RV groups and types on suckling piglets from different Canadian provinces (AB, BC, MB, NB, ON, QC, SK).

Canadian swine veterinarians submitted samples (fresh tissues, fecal swabs, or fecal material) from scouring piglets to the animal health lab for RV group and type identification, between July 1st, 2019, and June 30th, 2022. Analysis of the sequences was performed using the Merck Animal Health Sequivity Dashboard (3) and descriptive statistical analysis.

From over 800 samples submitted, 453 RV were sequenced out of 346 cases. Across provinces, RV C was present in 45.3% of samples, RV A in 43.2%, and RV B in 11.5% (Table 1). RV C G6 was identified in 154 samples (34%), followed by RV A G9 in 112 samples (24.7%). One RV group only was involved in 259 cases (75%), while in 87 cases (25%) more than one RV group was detected. RV A was present in 94% (82/87) of the mixed RV cases, followed by RV C in 89% (77/87), and RV B in 40% (35/87). Eighteen different types were identified by sequencing (5 RVA, 9 RVB, and 4 RVC).

Rotavirus-related diarrhea in suckling piglets remains a concern for the swine industry due to its high prevalence and impact on pre-weaning mortality and piglet weaning weight. Similar to previous studies, suckling piglets were mostly infected by only one RV group, although mixed RV group infections were observed. RV A is still a relevant pathogen, especially in ON. RV B was the least prevalent type, however, the most diverse. RV C G6 was the most prevalent RV type in Canada (except ON) in this study. The high diversity of RV, as shown in this study, still a major barrier to scours control in the farm.

When vaccine is to be used as a control measure in a farm, knowing which RV group is causing diarrhea is critical since

vaccine do not generate cross-protection among groups. ProSystem RCE is a commercial vaccine generating immunity to RV group A, *E. coli* and *C. perfringens* while RNA particle vaccine (Sequivity Technology) can be customized to generate specific strain immunity to RV groups A, B, and C. By using molecular diagnostic testing, your veterinarian could identify the specific group and type of RV circulating on your premise and advise, if a vaccine is needed, which could better meet your needs. ///

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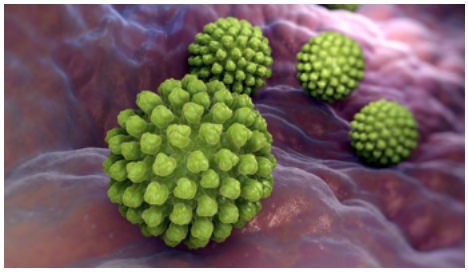

Table 1: Number of detected Rotavirus groups by Canadian provinces.

RV/Province	AB	BC	MB	NB	ON	QC	SK	Group Total
A	52		42	1	69	11	21	196
B	17		13		6	1	15	52
C	45	5	47	2	51	27	28	205
Province Total	114	5	102	3	126	39	64	453

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By invitation only

Manitoba

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CLEANING AND DISINFECTING OF WATERING SYSTEMS

OXYLIS + K-LINE

OXYLIS allows for the breakdown and removal of biofilms which form on the inside of waterline pipes, affecting water flow and overall water quality in swine facilities. By using OXYLIS as it is recommended will help to restore water flow and reduce the opportunity for bacterial contamination of livestock drinking water.

OXYLIS is a blend of Peracetic Acid and Hydrogen Peroxide which has a powerful oxidizing effect which scrubs and emulsifies organic build within the waterline.

A good quality drinking water management program should always start by having a chemical and bacteriological analysis.

Prior to using OXYLIS in your waterlines, ensure that all faucets are functioning well in order to release the air pressure that accumulates during the cleaning process and avoiding and damage to equipment.

TO CLEAN AND DISINFECT THE SYSTEM

1. Ensure all the animals do not have access to water while cleaning the waterline or that all the animals are removed from the barn.
2. Open the waterline to empty and remove all remaining water.
3. Fill the system with K-LINE detergent at the dosage recommended.
4. Let the K-LINE detergent soak for 30 to 40 minutes. Rinse the waterlines.
5. Determine the amount of OXYLIS cleaning solution needed to fill the waterline.
6. Fill the system with OXYLIS cleaning solution diluted at 2 % ensuring there is sufficient cleaning solution to fill the waterlines (example: 1 litre / 50 litres of water).
7. Once the solution has reached the outlet, close the outlet and let the OXYLIS solution sit and work for at least 6 hours.
8. Rinse the waterlines with the same drinking water normally given to the animals.
9. Each drinker nipple should be checked for free-flowing water. If the drinker is plugged or leaking, there could be solid remaining inside the line that will need to be removed.
10. Look for good water flow and no solids coming thru the drinkers.
11. The water pipes that go from the well to the livestock building must be cleaned and disinfected between each batch.
12. Repeat the whole procedure as needed or at the end of each batch of animals.

OXYLIS is recommended to be used before you routinely administer a waterline acidifier. After preparing your waterlines with OXILYS, you are ready to use Polyacide as a regular ongoing program for managing water pH, biofilms and bacterial imbalances.

CALCULATING QUANTITIES

Calculate the amount of OXYLIS cleaning solution needed for your waterline system.

Outside pipe diameter (cm)	Water volume for 100 m pipe (litre)	OXYLIS solution diluted at 2 % (litre)
1,2	11,30	0,23
1,5	17,66	0,35
1,8	25,43	0,51
2,5	49,06	0,98

Prepare the OXYLIS cleaning solution at 2 % (1 : 50) in a separated tank.

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