NUTRITION NOTES
KENT NUTRITION GROUP
Nutrition & Product Development Department

*May 5, 2016*

# USE OF HYDRAVANTAGE® DIETARY SUPPLEMENT IN SEW PIGS: IMPACT ON PERFORMANCE AND ECONOMICS

*Michael Edmonds, Ph.D., Vice President, Swine and Poultry Nutrition*

HydraVantage dietary animal supplement is a highly refined, flavored and soluble nutritional premix. In the research project conducted by Kent Nutrition Group, Inc. ("KNG") ending on February 24, 2016, the SEW pigs (20 days old) in Group 1 received water for the entire test period of 34 days (Table 1). We used the HydraVantage supplement at 2 ounces in 1 gallon of water to make a stock solution which was run through a proportioner set at 1:128 for the first 11 days in Groups 2 and 3. Pigs in Group 2 then received water from Days 11-34. With Group 3, we continued to use the HydraVantage supplement from Days 11-21 but at a rate of 1 ounce in 1 gallon of water to make a stock solution which was run through a proportioner at 1:128. Then the pigs on Group 3 received water from Days 21-34. The pigs went on test when they arrived at the Kent Product Development Center. The pigs were fed grind and mix diets containing KNG brand NexGen® supplement in 3 stages (Days 0-11, 11-21 and 21-34).

**Table 1. Effect of HydraVantage® Supplement (HV) in Weanling Pigs during Days 0-11 and Days 11-21[1]**

| | Group 1 | Group 2 | Group 3 |
|---|---|---|---|
| Water (Days 0-34) | √ | | |
| HV (2 ounces/gallon stock solution, Days 0-11) then water Days 11-34 | | √ | |
| HV (2 ounces/gallon stock solution, Days 0-11; 1 ounce/gallon stock solution, Days 11-21) then water Days 21-34 | | | √ |
| Number of Pens | 14 | 14 | 14 |
| Initial Weight, lb | 14.71 | 14.73 | 14.72 |
| **Days 0-11** | | | |
| Average Daily Gain, lb | .371 | .376 | .387 |
| Feed/Gain | 1.477 | 1.432 | 1.415 |
| Cost/lb Gain, ¢ | 49.61 | 48.10 | 47.55 |
| Net Return[2], $/Pig @ 80¢/lb Live Weight | 1.24 | 1.32 | 1.38 |
| Cost of HV/Pig[3], $ | 0.0 | .12 | .11 |
| Adjusted Net Return/Pig | 1.24 | 1.20 | 1.27 |
| Death Loss, % | 4.92 | 1.64 | 4.10 |
| **Days 11-21** | | | |
| Average Daily Gain, lb | .802 | .806 | .823 |
| F/G | 1.314 | 1.324 | 1.335 |
| Cost/lb Gain, ¢ | 26.27 | 26.48 | 26.69 |
| Death Loss, % | 4.10[a] | 1.64[ab] | 0.82[b] |

KNG 4N-57 [1]Means with different superscripts in a row are different (P ≤ .10)

[2]Value of gain minus the feed cost of gain

[3]$156/3 lb pail = $6.50/2 oz serving of HydraVantage supplement; $6.50/128 gallons = $0.05 per gallon of water consumed; The water consumption per pig in Groups 2 and 3 for the first 11 days were 2.42 and 2.09 gallons, respectively. The water consumption per pig in Groups 2 and 3 for Days 11-21 were 3.70 and 3.60 gallons, respectively. The cost of using HydraVantage supplement for Group 3 during Days 11-21 was 9 ¢/pig.

We observed small numerical improvements in gain and feed efficiency during Days 0-11 for those pigs on the HydraVantage (Groups 2 and 3) nutritional supplement (Table 1). We also observed that during Days 11-21 there was a trend (P ≤ .10) for fewer dead pigs in Group 3 (0.82%) vs. Group 1 (4.10%).

We found that pigs previously on HydraVantage supplement (Groups 2 and 3), had numerically (P ≤ .10) faster gains (5.8% to 6.7%) and/or better feed efficiencies and cost of gains than those on water alone during Days 21-34 (Table 2). Death loss during Days 21-34 was also numerically less for pigs previously on HydraVantage supplement. Overall (Days 0-34) we observed that

pigs in Group 3 (HydraVantage supplement used in the water for the first 21 days on test) had numerically faster gains (4.6%) and slightly improved feed efficiencies (-1.7%) compared to those in Group 1 that had water for all 34 days. These small improvements in performance resulted in an overall adjusted net return advantage of 37¢/pig for those in Group 3 vs. Group 1. In addition, the pigs in Group 2 also had an adjusted net return advantage of 30¢/pig compared to Group 1. In regard to death loss, the pigs in Group 2 had a significantly (P ≤ .05) lower death loss compared to those in Group 1, whereas those pigs in Group 3 had a numerically (P ≤ .07) lower death loss than those in Group 1.

**Table 2. Effect of HydraVantage® Supplement (HV) in Weanling Pigs during Days 21-34 and Days 0-34[1]**

| | Group 1 | Group 2 | Group 3 |
|---|---|---|---|
| Water (Days 0-34) | √ | | |
| HV (2 ounces/gallon stock solution, Days 0-11) then water Days 11-34 | | √ | |
| HV (2 ounces/gallon stock solution, Days 0-11; 1 ounce/gallon stock solution, Days 11-21) then water Days 21-34 | | | √ |
| Number of Pens | 14 | 14 | 14 |
| Initial Weight, lb | 14.71 | 14.73 | 14.72 |
| **Days 21-34** | | | |
| Average Daily Gain, lb | 1.112[b] | 1.186[a] | 1.177[ab] |
| Feed/Gain | 1.491[a] | 1.474[ab] | 1.452[b] |
| Cost/lb Gain, ¢ | 26.01[a] | 25.71[ab] | 25.34[b] |
| Death Loss, % | 2.46 | 1.64 | 0.82 |
| **Days 0-34** | | | |
| Average Daily Gain, lb | .781 | .812 | .817 |
| F/G | 1.421 | 1.417 | 1.396 |
| Cost/lb Gain, ¢ | 29.22 | 28.96 | 28.56 |
| Net Return, $/Pig @ 60¢/lb Live Weight | 8.15 | 8.57 | 8.72 |
| Cost of HV/Pig, $ | 0.0 | 0.12 | 0.20 |
| Adjusted Net Return/Pig | 8.15 | 8.45 | 8.52 |
| Death Loss, % | 11.48[a] | 4.92[b] | 5.74[ab] |

KNG 4N-57 [1]Means (black) with different superscripts in a row are different (P ≤ .10); [1]Means (blue) with different superscripts in a row are significantly different (P ≤ .05);

In evaluating the data from Table 2, we observed numerical advantages in performance and economics, from the use of HydraVantage supplement, along with reductions in death losses. Table 3 is an illustration showing the economic losses (does not account for any feed expenses) that occur from these differences in death losses when applied to a commercial nursery unit:

**Table 3. Impact of Loss in a 1200-Head Nursery Unit**

| | Group 1 | Group 2 | Group 3 |
|---|---|---|---|
| HydraVantage Supplement (Days Used[1]) | None | 11 | 21 |
| Death Loss, % | 11.48 | 4.92 | 5.74 |
| Number of Dead | 138 | 59 | 69 |
| Economic Loss at $42/SEW Pig | $5,796 | $2,478 | $2,898 |

[1]see Table 1 on usage levels

**BOTTOM LINE:**
Using a natural and quick delivery system with KNG's HydraVantage supplement, via water proportioners, has potential for positive performance and economic results.