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Speculation on the cause of PMWS

W. T. Christianson
PIC USA

I have been asked to speculate on the cause of post-weaning multisystemic wasting syndrome (PMWS). By definition, speculation takes us beyond the realm of disciplinary agreement and fact and, as such, it is inherently dangerous. In an effort to minimize these dangers, I will attempt to base my speculation on experience (e.g., mystery swine disease), acknowledge points that are agreed upon, and highlight weaknesses in current hypotheses.

I. Mortality has increased in North America and Europe over the past five years.

A. Sow mortality has received attention in North America, but pig mortality has the biggest impact on both continents.

II. Potential causes of the increased mortality:

A. Multifactorial (hard to argue with this).

1. Herd size has increased.
2. Effective labor has decreased (North America).
3. Respiratory disease has increased.
4. Ulcers (North America) have increased.

B. Infectious agents:

1. North America:

- a. A lot is being blamed on PRRS.
- b. *M. hyo*, *H. parasuis*, SIV.

2. Europe:

- a. Background respiratory diseases, less being blamed on PRRS.
- b. Distinct new syndrome (PMWS).

III. Speculation:

A. It is not coincidence that mortality rates have increased on both continents at roughly the same time.

IV. PMWS

A. Lots of different clinical signs are attributed to PMWS, but the common denominator is increased mortality—especially nursery mortality.

B. Mode of transmission is unknown.

C. Appears to spread geographically.

D. Litter effect—could be confusing congenital infection with genetic background.

E. Immunity seems to develop (the effects of infection die out).

V. Causative agent:

A. Infectious (spread, lesions).

B. Likely viral, not bacterial (lesions, lack of culture).

C. PCV2:

1. Clearly associated with lesions.
2. At least partial disease reproduction.
3. Problem is that it is present in normal herds (nearly all herds tested).
4. Too complicated.

VI. Occam's Razor: Faced with several competing hypotheses, prefer the simplest one. In this case, the simplest hypothesis is that we have an infectious agent that has not yet been identified which is causing mortality.

VII. Second level speculation:

A. The infectious agent is immune suppressive.

B. It is present on both continents.

C. Mortality diagnosis today is based on secondary infections.

