

Improving Reproductive Efficiency— the Veterinarian's Inroad to Agribusiness

by
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Not too long ago, large animal veterinarians derived a considerable portion of their income from vaccination. With the cessation of most vaccinations, some practices suffered somewhat. Most continued to do quite well because the volume of their practice increased to take up the slack. Still others felt confident enough and had enough ingenuity to develop herd health programs which thrived. Today, production units are increasing in size for obvious economic reasons. Not infrequently, neighbors join together to form a production unit. These units are beginning to perform their own veterinary mechanics. Only 2½% of units farrowing over 500 sows per year are using veterinary help on any type of contract basis compared to 10% of the smaller producers.⁷ This is agribusiness, and agribusiness's primary concern is economics. One of the primary complaints of these production units is that many veterinarians don't understand the economics of production. Certainly any veterinarian who wants to become a part of agribusiness must understand confinement environment, waste disposal, and nutrition, establish preventive medical procedures, and provide quick and accurate diagnosis, but most of all he must display to these producers that he can be used to help fill the producer's pocketbook. Efficient swine production really must start with reproductive efficiency. This is an area that agribusiness is the least qualified and an area that the veterinarian is highly qualified and can help make the difference between profit and loss.

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The Need to Measure Efficiency

The swine industry has never really known how efficiently it has operated. This is especially true of the breeding herd, and after all, this is where it all starts. In the past, a producer would say that he farrowed 25 sows and would wean 220 pigs so he must be doing fine. And he was, unless he took into account the other 6 sows that he kept around and wouldn't settle. Those 6 that weaned 0 pigs are those that eat up profits. So measuring performance in pigs per litter farrowed or weaned may give a rosy picture when in fact the opposite may be true.

Measurement of Reproductive Efficiency

To get an accurate picture of swine reproductive performance you must include variables such as abortion, repeat breeders, those non-pregnant animals that don't return or come into heat, and those that are finally culled. A system that takes these factors into account was developed by two veterinarians and two farm management specialists at the University of Illinois. The system they presented at the A.V.M.A. Convention 1972 was the "female month" system which takes into account sows and gilts that don't farrow. To calculate female months, you add up all the sows and gilts on the premises on the same day each month and total them for a year.¹ This gives the number of female months for a base in calculating efficiency. Then you can add up the number of pigs farrowed and the number of pigs weaned for one year and divide this by the female months for that year to get pigs farrowed per female month and pigs

weaned per female month. (See Table I) Gilts should be figured as part of the breeding herd when they become six months old. One can also compute such values as feed costs of gestation, lactation, etc. per female month. Since the system is new, standard figures are not yet available, but the figures given in Table II are the results of the Illinois work which could be used as a comparison, but should not be used as a goal.

Table 1
Female months record system

Month/day	Female months	Pigs farrowed	Pigs weaned	Explanations
1/1	(Selected 100 gilts)			
1/31	100			
2/28	100			Breeding
3/31	90			Cull 10
4/30	90			
5/31	90	743		Farrowing
6/30	90		599	Weaning
7/31	80			Re-breeding Cull 10
8/31	80			
9/30	75			Cull 5
10/31	75			
11/30	75	730		Farrowing
12/31	75		586	Weaning
Totals	1020	1473	1185	

Pigs farrowed per female month, 1.44
Pigs weaned per female month, 1.16

Table 2
Reproductive performance
(on 76 Illinois hog farms)

	Gilts	Sows	All females
litters farrowed	9,017	12,519	21,536
live pigs farrowed	74,466	121,945	196,411
total pigs weaned	60,083	97,756	157,839
live pigs farrowed/litter	8.26	9.74	9.12
pigs weaned/litter	6.66	7.81	7.33
total female months	86,804	88,091	174,895
female months per farrowing	9.63	7.04	8.12
live pigs farrowed/female month	0.86	1.38	1.12
pigs weaned/female month	0.69	1.11	0.90

Veterinarian's Role to Improve Reproductive Efficiency

There are several things a veterinarian may do to improve the reproductive efficiency of his client's herd. First of all, it is obvious with the female month concept that early culling of nonpregnant females is a way to improve efficiency of the herd. Gilts should be given two chances to settle. Any more chances are inefficient as 10-15% of gilts are sterile with anatomic or endocrine disorders being the most common causes.¹ Reproductive efficiency is also greater in gilts when bred in dry lots as compared to confinement, although placement of boars in pens adjacent to the gilts, penning in smaller numbers, and using PMS therapy has aided breeding of gilts in confinement.³ It is also important to select for these gilts that breed easily. Sows should be bred only once. If the sow has been fed properly during lactation, she should be able to conceive on the first post-weaning estrus. The best way to cull these females early so that the number of female months is as low as possible is to use the Pregnosticator.^a The machine is often used on gilts 60 days after the boar is first turned in with the gilts. Since the machine can detect 25 day pregnancies, all gilts not bred in two heats are thus culled.⁶ The money saved on feed alone by culling them two months earlier than any other method justifies the machine's use let alone the value of getting rid of the poor genetic material. For too long emphasis has been put on trying to breed a good type hog while not realizing you may be breeding reproductive inefficiency into the herd. Other recommendations made by veterinarians to prevent reproductive failure by maintaining normal reproductive physiology is to:³ (1.) Select gilts with increased ovulation rate, litter size, and weaning weights. (2.) Restrict energy after breeding to increase embryonal survival. (3.) Don't attempt breeding of gilts in confined premises. (4.) Buy boars eight weeks in advance of use. For three weeks observe their health and for the remainder commingle them with the breeding herd to develop a common en-

^a Manufactured by Mextric Corporation, Denver, Colorado.

teroviral immunity and observe their ability to perform coitus. Training of the boars may be necessary. (5.) Keep temperature as low as possible during breeding and early gestation. Embryos are very susceptible to heat stress during and shortly after implantation. Sprinkling systems have shown to significantly increase number of pigs per litter.⁵ (6.) Double mate by changing boars every 24 hours. I must add that one should vaccinate for all the strains of Leptospirosis available. If the problem lies between farrowing and weaning, the veterinarian is well trained to make management suggestions. Confinement farrowing greatly increases scours and a veterinarian can be much more effective in his treatment by bacterial culturing and performing antibiotic sensitivities. These procedures especially impress the producer that there are things a veterinarian can and must do that he cannot.

Diagnosis of Reproductive Failure

In diagnosis of reproductive failure one of the most useful and yet least used method of diagnosis would be to make arrangements with a slaughter house to examine the genital tracts and ovaries of all culled gilts and sows for anatomical abnormalities, pseudopregnancies, cystic follicles, etc. A diagnostic lab should always be used for any abortion, and it would be wise to have random prebreeding serum samples stored in case of reproductive failure so a lab could compare titers. Also good records kept of the herd will help in establishing the history of the herd so important in diagnosing some diseases.

With most contractual agreements, the veterinarian is paid for the increased production he is making possible through his efforts. This is good, for it establishes a positive attitude between the veterinarian and client making both work harder. Using the female month method and the Pregnosticator, a veterinarian can demonstrate a great improvement of reproductive efficiency by culling alone. An association could be established that would officially be able to measure this performance and thus stimulate the inclusion of the veterinarian into production units by developing competition similar to that exhibited in the dairy industry. Another method of keeping up with agribusiness, would be to hold meetings explaining practical reproductive physiology and veterinary mechanics. We need to develop an impression that today's veterinarian is needed more today than ever before, more so now that he can be an asset to the industry rather than a liability. He must put himself at the heart of the program. He can not just be the healer.

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