Diagnosing pregnancy in sheep — the “Scanopreg”

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The “Scanopreg”*, an ultrasonic machine for diagnosing pregnancy in sheep, is effective as early as eight to nine weeks of pregnancy, and could therefore be a useful management tool.

Since its release in 1978, the “Scanopreg” has created considerable interest because of its potential value in management of ewe flocks. It is an echo-sounding machine similar to back-fat measuring devices. An ultrasonic signal is emitted from a probe which is placed on the abdomen of the ewe and a receiver picks up reflected signals. When the ultrasonic signal passes through a fluid-filled sac such as a pregnant uterus, no echo is produced. The machine is programmed to recognise this lack of echo, and it then emits a high-pitched peep and two green lights are illuminated — the pregnant signal.

Tests by the Department of Agriculture showed that ewes in late pregnancy could be detected quickly, easily and accurately. However, detection should be much earlier if it is to be of commercial value to farmers. Consequently, the Department began more rigorous testing to find how early in pregnancy the machine was effective.

**Testing**

Oestrus was synchronised in 250, 2½ year old ewes using appropriate drugs. These ewes were joined with 30 rams fitted with sire-sire harnesses and crayons. Mated ewes were identified each day, and 161 ewes mated over a four day period were selected for testing the Scanopreg. Testing began 30 days after the first day of joining, with tests on days 30, 32, 36, 43, 50, 57, 64 and 71. On day 64, the uterus of each ewe was examined by laparoscopy to confirm pregnancy. At each test, the ewes were examined in two positions — standing normally, as lying on their backs, up-side down in a cradle. Parafin oil was used on the probe to ensure an air-free contact between the probe and the skin of the ewe; air-free contact is essential, as the ultrasonic signal cannot pass through air.

The probe was placed on the bare skin of the belly, about 50 mm in front of the udder on the ewe’s right side. As the bladder is a fluid-filled sac like the uterus, care was necessary to direct the probe away from the bladder. The probe was held in place until a constant pregnant signal was received, or for five seconds if there was no signal. When a very brief intermittent pregnant signal was received, 10 to 15 seconds was allowed to obtain a relatively constant signal, otherwise the ewe was classified as non-pregnant.

**Results and conclusions**

The Scanopreg can detect pregnant ewes after only 27 to 30 days of pregnancy, but only about 10 per cent of pregnant ewes will be detected. Testing has to be delayed to around eight to nine weeks of pregnancy to give acceptable accuracy. The Figure indicates the accuracy of tests at various times.

After 54 to 57 days of pregnancy, the ewes examined upside-down in the cradle could be diagnosed with acceptable accuracy. Those in the normal standing position were diagnosed with acceptable accuracy one week later, between 61 and 64 days of pregnancy.

In most cases the cradle position gave marginally better results. In practice, this means testing a flock of ewes at least eight to nine weeks after the end of joining will give maximum accuracy. Testing earlier will mean that some ewes served late in joining, although pregnant, will be diagnosed non-pregnant. The time taken for the test depends almost entirely on the time taken for delivering and restraining the ewes. The ease of placing the probe on the skin and obtaining suitable contact also affects the speed of the test. Ewes standing generally take longer to test than ewes on their backs in a cradle. With woolly ewes, this difference becomes more important, as the wool may wipe the paraffin oil off the probe.

Three people can easily test about 160 ewes an hour, but with poor facilities and woolly sheep, as few as 50 an hour can be tested.