



Figure 4-46. Cattle estrous synchronization programs using  $\text{PGF}_2\alpha$ .

Approximately two-thirds of randomly cycling females should respond to a single injection. The first program is popular because it minimizes cost and labor. The advantage of the second scheme is that it allows the producer to assess the cyclic status of the herd during the first five days of conventional AI. If less than 20% of the cows come into estrus, then efficient use of drug is in doubt. The two-injection program is the only system in which all cycling animals would theoretically come into estrus during the planned insemination period (ie., they would be synchronized into the responsive stage of the luteal phase). Timed insemination has met with some success at 80 hours after a second injection of  $\text{PGF}_2\alpha$  (but not as good as breeding to detected estrus). Clean-up bulls should be left with the females no longer than 60 days.

Use of natural mating to a synchronized estrus is an option, although it circumvents the significant benefits of AI. A mature bull of proven breeding capacity can service up to 20 synchronized cows.

Regardless of method of synchronization, heifers (receiving good winter nutrition) should be bred about one month before the cow-herd; this allows producers to concentrate their effort on inexperienced animals at calving (before the cows begin to calve) and gives the female an extra 30 days to recover from parturition (regain condition) before being rebred with the cows. Semen from a bull that produces small, refined calves should be used on heifers.