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Update on gonadotropin-releasing hormone treatments for repeat breeders

Abstract

In three of six studies involving over 1,650 cows, treatment of lactating dairy cows with 100 µg GnRH (2 cc Cystorelin®) at the time of third or fourth insemination improved conception rates by 12 percentage points. When all six studies are considered, rates improved by 10 percentage points. These data provide strong evidence for continued use of GnRH at the time of insemination for repeat breeders.; Dairy Day, 1987, Kansas State University, Manhattan, KS, 1987;

Keywords

Kansas Agricultural Experiment Station contribution; no. 88-114-S; Report of progress (Kansas Agricultural Experiment Station); 527; Dairy; Gonadotropin-releasing hormone (GnRH); Conception rates; Lactation

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K**S****U****UPDATE ON GONADOTROPIN-RELEASING
HORMONE TREATMENTS FOR
REPEAT BREEDERS****J.S. Stevenson**

Summary

In three of six studies involving over 1,650 cows, treatment of lactating dairy cows with 100 µg GnRH (2 cc Cystorelin®) at the time of third or fourth insemination improved conception rates by 12 percentage points. When all six studies are considered, rates improved by 10 percentage points. These data provide strong evidence for continued use of GnRH at the time of insemination for repeat breeders.

Review of Experiments

Table 1 summarizes six published studies in which GnRH was administered at repeat services. Three of the studies did not demonstrate significantly higher conception rates after GnRH treatment, but two of these had a limited number of cows. In the last study (Stevenson et al., 1987), the health status of cows was known prior to treatment. GnRH was found to be equally effective for increasing conception rates in cows with previous reproductive problems as it was in cows with a normal health status, compared to untreated cows in each health status (see pp 24-25 in this publication).

Some methodologies were different in the six studies. In most cases, GnRH was administered immediately after insemination. However, in the study by Pennington et al. (1985), GnRH was given within 2 hr of first detected estrus and cows were inseminated at various intervals after GnRH. The timing of GnRH and AI, relative to detected estrus, was varied in our early work (Stevenson et al., 1984). In spite of these differences, positive effects of GnRH occurred at the recommended dose of GnRH or Cystorelin® (100 µg), when it was given at the time of AI following third or fourth service.

Use of GnRH also increased conception rates of dairy cows at first and second services in several studies. However, based on preliminary work in Israel (personal communication, Y. Folman), it appears that timing of GnRH administration relative to the onset of estrus and the timing of insemination may be critical to its potential success. We are continuing to study these variables in our research. We suggest that the potential advantages for using GnRH be considered relative to its cost and the possibility of no positive response with GnRH use at any service, because of presently unknown factors in some herds.

Table 1. Conception rates of repeat-breeding dairy cows treated with GnRH

No. cows studied	% pregnant		Reference
	Control	GnRH	
185	48	73*	Lee et al. (1983) Am. J. Vet. Res. 44:2160.
97	51	66	Stevenson et al. (1984) J. Dairy Sci. 67:140.
92	46	55	Pennington et al. (1985) Bov. Pract. 20:14.
961	38	47*	Phatak et al. (1986) Theriogenology 26:605.
209	46	44	Lewis (1987) J. Anim. Sci. 65(Suppl. 1):185.
513	36	47*	Stevenson et al. (1987) J. Anim. Sci. 65(Suppl 1):418.
2,057	40	50	Weighted average = +10% points

*Higher conception rates than control (P<.05).

