

Impact of a Sustained-Release Ivermectin Bolus on Weight Gain in Breeding age Holstein Heifers under Commercial Pasture Conditions

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A sustained-release ivermectin bolus which is available in Canada and European countries (IVOMECS[®] SR Bolus) has been proved efficient for the treatment and prevention of nematodes in growing beef and dairy cattle. However, its effect on growth in breeding age dairy heifers has not been demonstrated, which leaves practitioners in doubt in regions where heifers are often confined until breeding age and then turned to pasture.

This field trial was designed to test the effect of treatment with a sustained-release ivermectin bolus on average daily gain and total weight gain in breeding age Holstein heifers under commercial pasture conditions in southern Quebec. Ninety-six heifers from twelve herds were randomly allocated at turnout to treatment with a commercially-available ivermectin bolus (n=49) or untreated control (n=47) groups. Animals were weighed at turnout, mid-season and at the end of the grazing season. Fecal samples were taken and nematode eggs were counted.

Nematode egg excretion was relatively low throughout the pasture season, which was abnormally warm and dry until mid-summer (as confirmed by federal environmental data). Over the entire pasture season, average daily gain was higher in treated animals than in control animals (difference = 0.08 kg/day, p=0.010). Total weight gain was also higher in treated animals than in control animals (difference = 12.82 kg, p=0.013). Differences and p-values reported here take under account the farm effect. Homo-geneity of treated and control groups was statistically verified for age, weight and days bred at turnout as well as for days pregnant at the end of the study. The results of this study suggest that preventive treatment of breeding age grazing dairy heifers with a sustained-release ivermectin bolus provides a significant weight gain advantage, even in situations with realistic utilization of moderately contaminated pastures. This could possibly translate into a greater potential for milk production.

Table 1. Risk factors for infection of first-lactation cows with *Dictyocaulus viviparus* in herd.

Number of farms	Farms where heifers and cows are pastured		Heifers are pastured (whether or not cows are)		Lactating cows are pastured (whether or not heifers are)	
	122		154		139	
	Odds Ratio ¹	p-value	Odds Ratio	p-value	Odds Ratio	p-value
Heifer's pasture mowed	2.9	p < 0.05	2.2	p < 0.05	—	—
Heifers = complete paddock changes during summer	0.2	p < 0.05	0.2	p < 0.1	—	—
Heifers = all-summer access to same paddock	2.2	p = 0.1	2.2	p < 0.1	—	—
More than 70 cows in herd	4.9	p < 0.1	3.8	p < 0.1	3.6	p = 0.1
Heifers grazed with dry cows	2.0	p < 0.1	NS ²	NS	NS	NS
Cows exposed to pasture	—	—	5.2	p < 0.05	—	—
Heifers exposed to pasture	—	—	—	—	3.9	p < 0.1

¹ When an Odds Ratio is superior to 1, the risk factor is associated to a risk increase and when it is below 1, it is associated to a diminished risk.

² NS = Not statistically significant at the $\alpha = 0.1$ level.