Effect of Route of Administration of Dinoprost Tromethamine on Serum Profiles of PGFM and Progesterone in Lactating Holstein Cows

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Background:

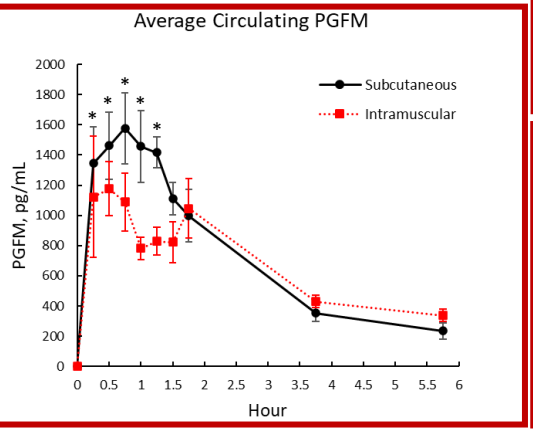
Dinoprost tromethamine, an analogue of prostaglandin F2 alpha (PGF), is commonly used in ovarian synchronization protocols, and is approved for use both via subcutaneous (SC) and intramuscular (IM) administration, though there is little research exploring physiologic differences between the two routes of administration.

Objective:

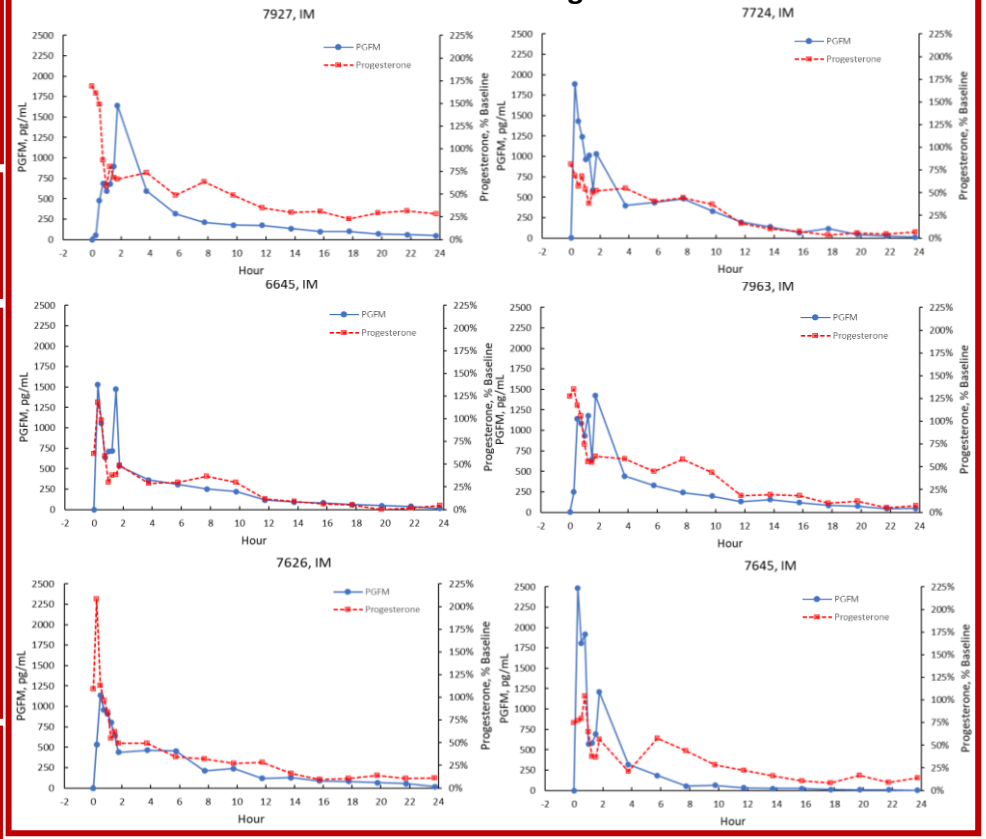
To compare profiles of circulating PGF metabolite (PGFM) and progesterone (P4) in lactating Holstein cows based on route of administration of dinoprost tromethamine.

Experimental Design:

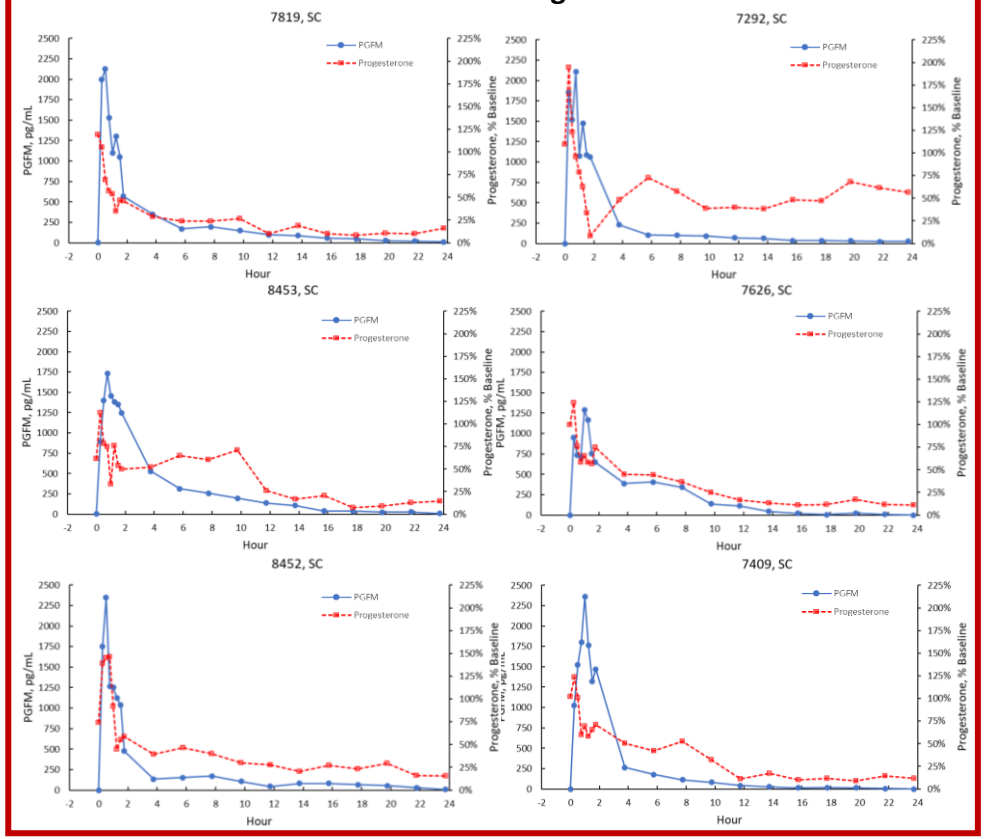
- Day -9: GnRH
- Day -2: PGF
- Day 0: GnRH
- Day 1: Ovulation Confirmed
- Day 6: Jugular Catheters Placed
- Day 7, Hour 0: PGF Administered After Blood Collection either IM or SC
  - Hour 0.25-1.75 Blood Collection Every 15 Minutes
  - Hour 2-48 Blood Collection Every 2 Hours
  - Hour 48-72Blood Collection Every 12 hours



IM Administration: Individual Circulating PGFM & P4 Profiles

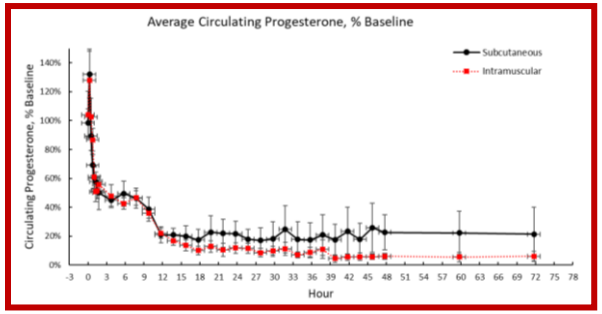


SC Administration: Individual Circulating PGFM & P4 Profiles



Area Under the Curve, Circulating PGFM:

	Area Under the Curve, Hours 0-2
Intramuscular	1,586 ± 150 pg•hr/mL
Subcutaneous	2,223 ± 160 pg•hr/mL
P-Value	0.02



Conclusion:

Although SC cows had greater circulating PGFM concentrations 15 to 90 min after treatment and a higher area under the curve from hours 0-2 than IM cows, the decrease in circulating P4 concentrations during induced luteolysis did not differ based on route of dinoprost tromethamine administration.

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