

Financial benefits of importing semen

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Assumptions

1. 120 Cow dairy herd, all year round calving, producing 540,000 litres (4500 litres per cow) in year one.
2. It takes 12 months to get the first calf on the ground from imported semen
3. UK average cow PLI – 0  
Jersey average cow PLI – minus 300 litres  
Imported Bulls PLI - plus 500 litres  
**Difference plus 800 litres**
4. Imported bull semen to be used on the majority (80%) of the cows in the herd (175 services). Usual % of cows in the herd inseminated would be 60% (130 services). Remaining cows in the herd mated by natural service.
5. Calving rate to first service 55%
6. First cross plus 400 litres, Second generation 600 litres, Third generation 700 litres enhanced milk yield.
7. 40 heifer calves from imported sires reared annually for the first 5 years
8. Normal replacement rate of 25% or 30 heifers per annum resumed in the 6<sup>th</sup> year.
9. Cost of rearing a heifer to 2 year calving £700, cull value £200 (Post OTMS).
10. JPBS service cost £9 to £12, Imported semen cost £18
11. Concentrate cost £185 per tonne
12. Average concentrate feed use in Jersey 0.43 kg per litre produced. Progeny from imported bull's 0.40 kg first generation, 0.38kg second and third generations.
13. Milk price per litre 33ppl. Value of purchased milk licence 12ppl.

Year	Extra Income	£	Extra costs	£	£ +/-
1	130 services @ average £10	1300	175 inseminations @ £18	3150	
				<b>-1850</b>	<b>-1850</b>
2	130 services @ average £10	1300	10 extra calves to 12 months £350	3500	
			175 inseminations @ £18	3150	
				<b>-4850</b>	<b>-6700</b>
3	130 services @ average £10	1300	10 extra calves/ heifers @ £700	7000	
			175 inseminations @ £18	3150	
				<b>-7850</b>	<b>-14550</b>
4	40 heifers x 400 litres x 33ppl	5280	10 extra calves/ heifers @ £700	7000	
	130 services @ average £10	1300	175 inseminations @ £18	3150	
	9 extra culls @ £200	1800	Extra concentrates @ 0.40kg litre	1184	
	Concentrates saved (4500l)	999	Purchased Licence litres @ 12ppl	1920	
				<b>-3875</b>	<b>-18425</b>
5	80 heifers and cows x 400 x 33ppl	10560	10 extra calves /heifers @ £700	7000	
	130 services @ average £10	1300	175 inseminations @ £18	3150	
	9 extra culls @ £200	1800	Extra concentrates @ 0.40kg litre	2368	
	Concentrates saved (4500l)	1998	Purchased licence litres @ 12ppl	1920	
				<b>+1220</b>	<b>-17205</b>
6	120 heifers and cows (20% second cross) x 440 x 33ppl	17424	10 extra calves/heifers @ £700	7000	
	9 extra culls @ £200	1800	130 inseminations @ extra £8	1040	
	Concentrates saved (4500l)	3497	Extra concentrates @ 0.395 kg litre	3858	
			Purchased licence litres @ 12ppl	2496	
				<b>+8327</b>	<b>-8878</b>

7	120 heifers and cows (50% second cross) x 500 x 33ppl	19800	10 extra heifers @ £350	3500	
	9 extra culls @ £200	1800	130 inseminations @ extra £8	1040	
	Concentrates saved (4500l)	3996	Extra concentrates @ 0.39 kg litre	4329	
			Purchased licence litres @ 12ppl	864	
				+15863	+6985
8	120 heifers and cows (75% second cross) x 550 x 33ppl	21780	130 inseminations @ £8	1040	
	Concentrates saved (4500l)	4495	Extra concentrates @ 0.385 kg litre	4701	
			Purchased licence Litres @ 12ppl	720	
				+19814	+26799
9	120 heifers and cows (15 % first, 70% second, 15 % third) x 585 x 33ppl	23166	130 inseminations @ £8	1040	
	Concentrates saved (4500l)	4795	Extra concentrates @ 0.382 kg litre	4961	
			Purchased licence litres @ 12ppl	504	
				+21456	+48255
10	120 heifers and cows( 5% first, 65% second, 30% third) 620 x 33ppl	24552	130 inseminations @ £8	1040	
	Concentrates saved (4500l)	4995	Extra concentrates @ 0.38 kg litre	5230	
			Purchased licence litres @ 12ppl	504	
				+22773	+71028

### Conclusions

1. The benefits gained from rearing an increased number of genetically superior heifers to increase milk output and enhance the culling rate of the existing herd will be outweighed by the extra costs until the fifth year of the project.
2. From the 5<sup>th</sup> year onwards the extra income generated from milk sales, culls and reduced concentrate usage will increasingly cover the costs of improving the genetic base of the herd.
3. It will take 7 years from the import of the first improved semen to see a positive financial return from the capital invested in improving the genetic merit of the dairy herd.
4. From year 6 to year 10 milk yields will rise consistently owing to an increasing number of 2<sup>nd</sup> and 3<sup>rd</sup> generation daughters of imported bulls entering the herd.
5. It is estimated that feed efficiency in terms of concentrate usage per litre will fall from the current island average of 0.43 kg per litre to 0.38 kg litre in 10 years
6. The increased genetic merit of the dairy herd will increase the current average milk yield per cow from 4500 litres per year to 5120 in 10 years.
7. The extra profitability generated from the decision to use exclusively imported bull semen on a 120 cow dairy herd over a 10 year period would amount to approximately £70000.
8. In the 10<sup>th</sup> year of the project profitability would be approximately £22,750 greater than that of the current dairy herd. In addition profitability of the herd would continue to rise as a greater number of 3<sup>rd</sup> and 4<sup>th</sup> generation heifers enter the herd.
9. The above increase in profitability of the herd equates to an increase profitability £190 per cow or 3.7ppl produced.

**10. It should be noted that this paper does not take into account the political ramifications of importing semen into Jersey!!!**

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