



Two for the price of one? Moving to dual-purpose dairy breeds has little impact on total greenhouse gas emissions from cattle production

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Background



UK beef currently produced from suckler or dairy herds (~50:50).



What happens if we instead move to dual-purpose cattle?

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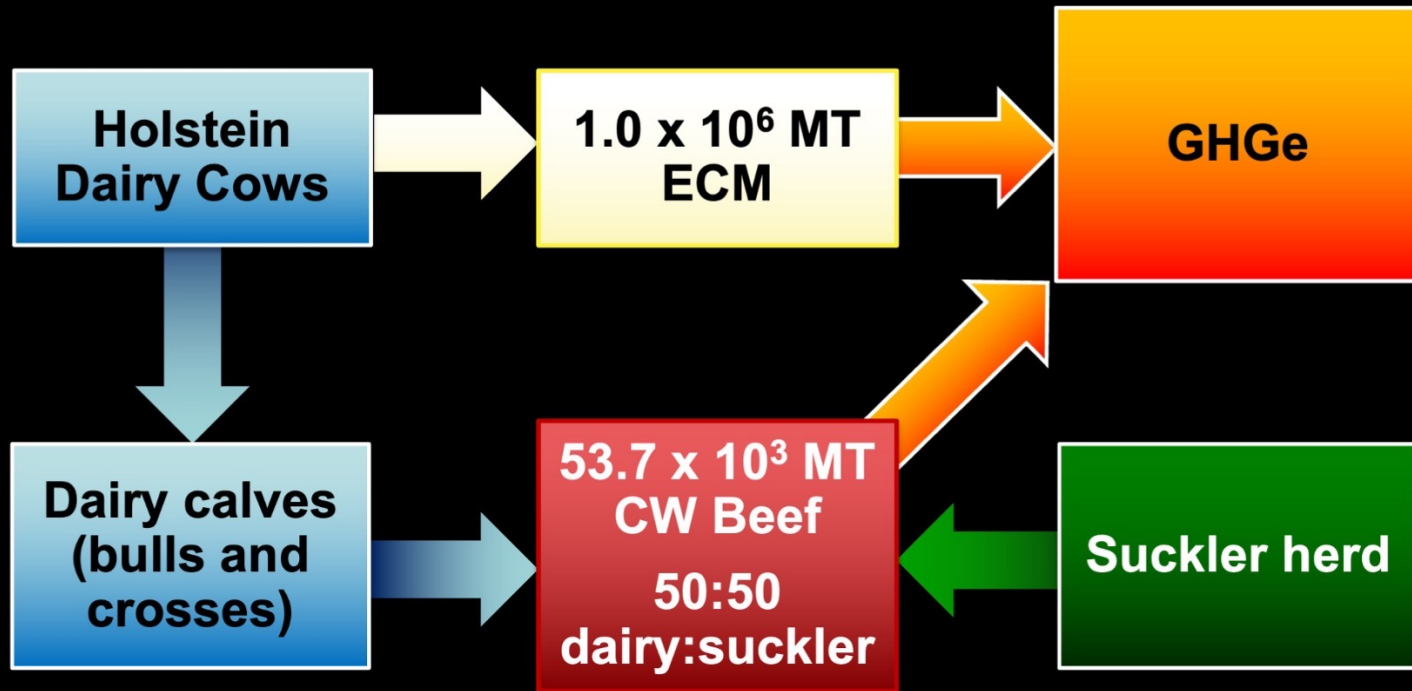
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High level impacts of changing to dual-purpose breeds



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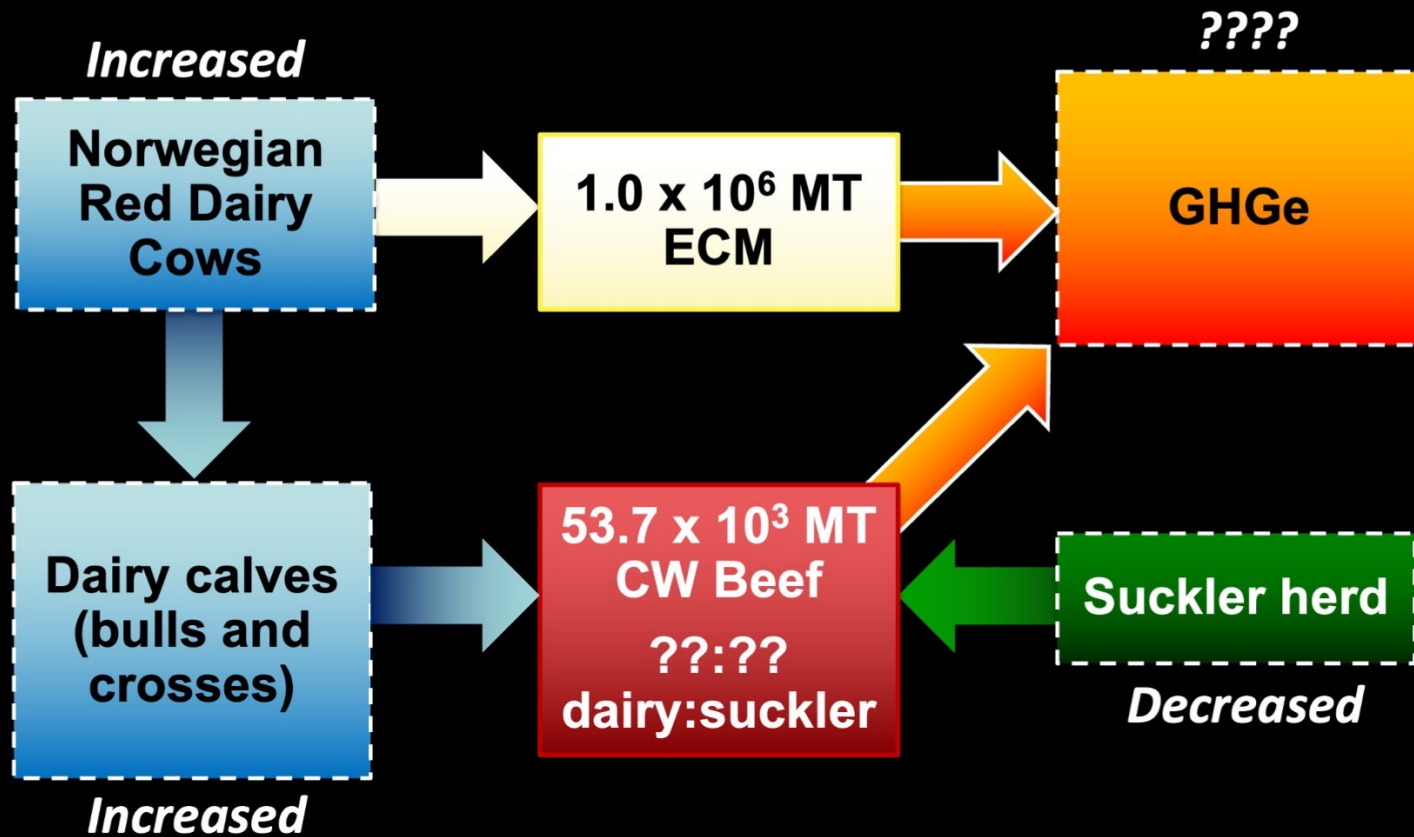
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High level impacts of changing to dual-purpose breeds



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Effect of breed and system on performance

	Holstein	N. Red
Energy-corrected milk yield, kg/d	27.5	24.7
Lactation length, d	331	323
Mature bodyweight, kg	570	537
Calving interval, d	391	383
# of lactations before culling	3.6	4.2
Cow mortality, %	6.3	3.5
Heifer replacement rate, %	27.8	23.8
Age at first calving, mo	26.6	26.9
Cows producing a live calf/yr, %	86.6	91.5
Calf birthweight, kg	42.2	39.7
Pre-weaning calf mortality, %	7.2	4.0

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Results: cattle numbers and production

	Holstein	N. Red	Diff.	%
Dairy cows, '000 head	119	133	13.9	11.7
Dairy heifers, '000 head	75.3	72.4	-2.94	-3.86
Total dairy cattle, '000 head	194	206	11.5	5.94
Prime beef from dairy, tonnes CW	21,057	29,258	8,201	39.0
Cull beef from dairy, tonnes CW	7,124	7,303	179	2.51
Suckler cows, '000 head	96.4	64.8	-31.6	-32.8
Prime beef from sucklers, tonnes CW	21,057	14,157	-6,900	-32.8
Cull beef from sucklers, tonnes CW	4,516	3,036	-1,480	-32.8

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Results: GHGe from beef and dairy

	Holstein	N. Red	Diff.	%
<u>Emissions intensity, kg CO₂e/kg</u>				
Dairy GHGe/kg ECM	1.48	1.51	0.03	2.29
Dairy beef GHGe/kg CW	17.2	17.7	0.48	2.81
Suckler beef GHGe/kg CW	32.4	32.4	-	-
<u>Total GHGe, tonnes CO₂e</u>				
Dairy GHGe	1,477,819	1,511,690	33,871	2.29
Dairy beef GHGe	361,446	516,304	154,858	42.8
Suckler beef GHGe	783,477	526,746	-256,731	-32.8
Total beef GHGe	1,144,923	1,043,050	-101,873	-8.90
Total cattle industry GHGe	2,622,742	2,554,740	-68,002	-2.59

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N. Red X calf performance improvements needed to reduce GHGe

N. Red dairy beef GHGe/kg CW	Improvement needed in N. Red dairy X GHGe/kg CW	Effect on total cattle industry GHGe
17.7	-	-2.59%
16.8 (-5%)	6.2%	-3.58%
15.9 (-10%)	12.4%	-4.56%
15.0 (-15%)	18.7%	-5.55%

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Conclusions



Changing from Holstein to N. Red cattle increases GHGe from dairy production and reduces GHGe from beef production



The net change in whole cattle sector GHGe from shifting to N. Red cattle is relatively small (-2.59%)



The breed change is unlikely to be adopted by UK dairy farmers



Greater GHGe mitigation could be achieved through improving the efficiency of suckler production

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Thank you!



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