Dairy Management

WISCONSIN UNIVERSITY OF WISCONSIN-MADISON

DEPARTMENT OF DAIRY SCIENCE University of Wisconsin-Madison

UW Extension University of Wisconsin-Extension

Valoración económica de programas reproductivos

Victor E. Cabrera
University of Wisconsin-Madison

ECONOMÍA NUTRICIÓN Y MANEJO
Promoción y mejora de los beneficios de la explotación lechera a través de la nutrición y la reproducción

Blanca
From the Pyrenees

Blanca Continued Professional Development. 10, 11, y 12 June 2014, Lleida, Spain.

Preñez vs. dinero

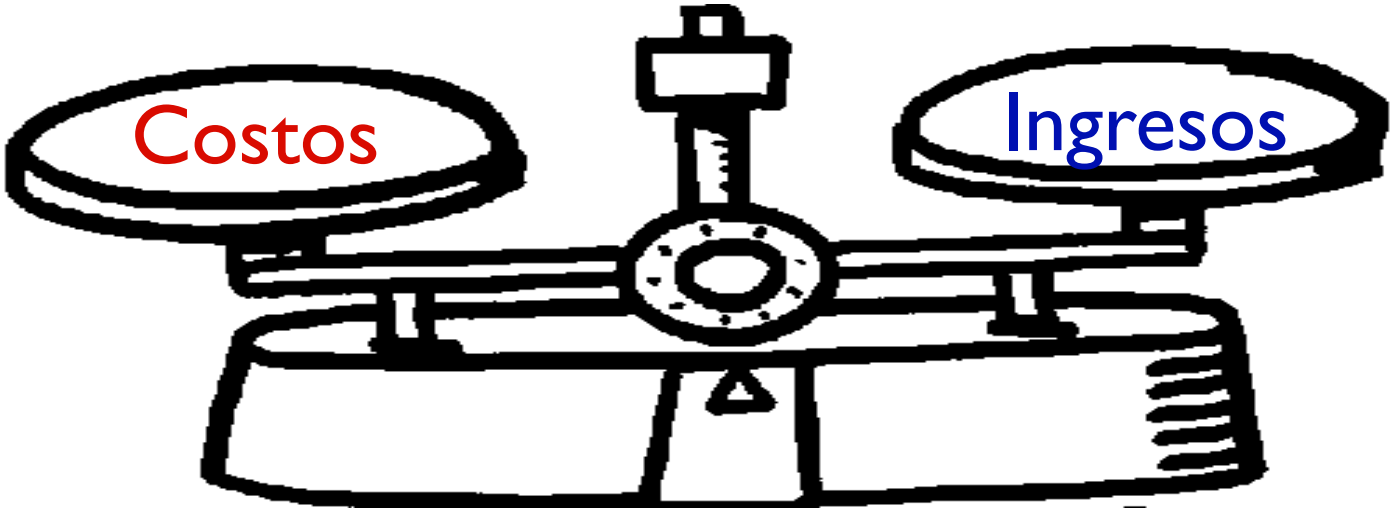
Trabajo

Semen

Hormonas

Leche

Terneros



Valor programas reproductivos

Retornos económicos
Complicado de calcular
Muchísimas variables integradas

Más importante que el valor absoluto
Diferencia entre escenarios

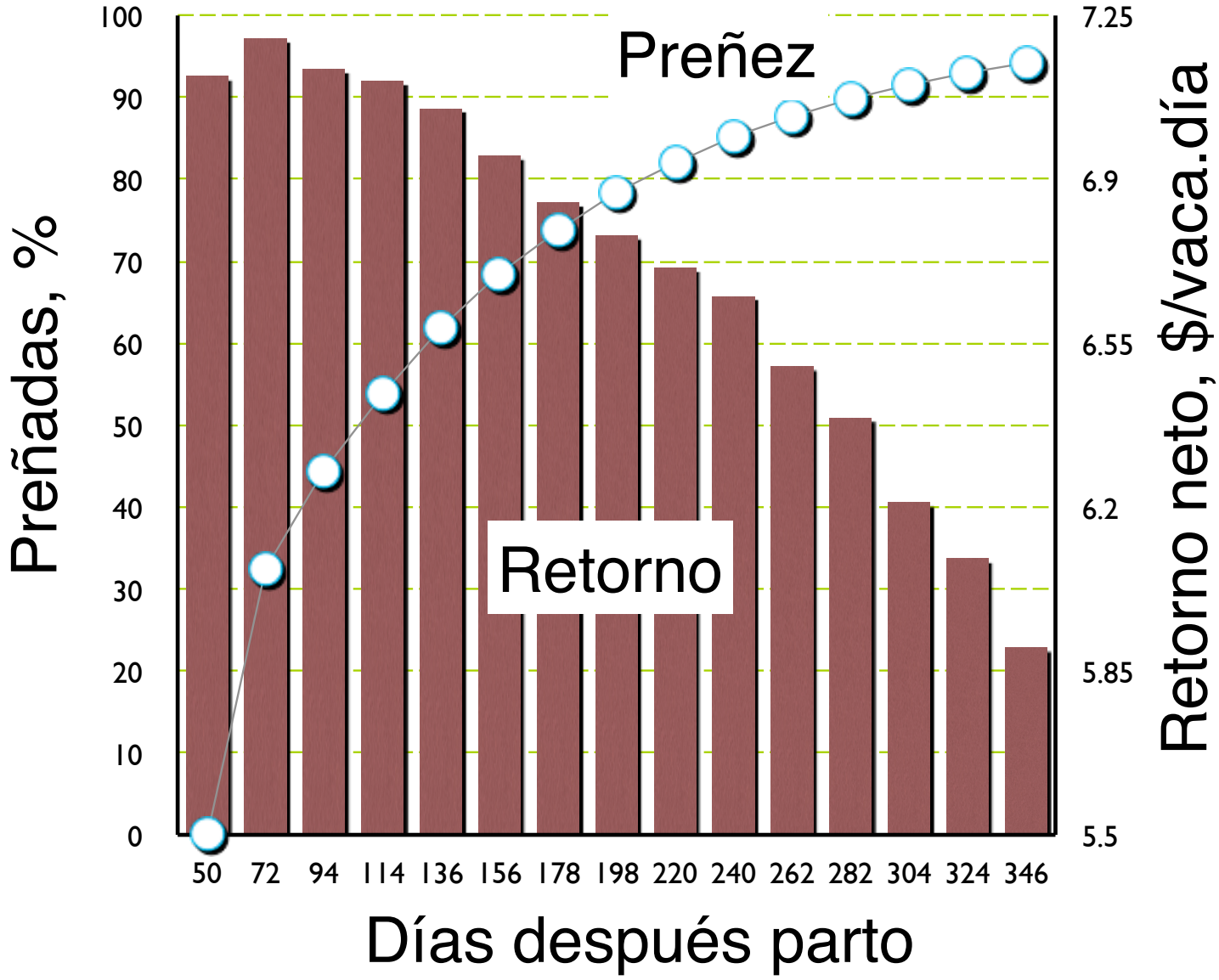
Específico para finca
Curvas de lactancia
Parámetros económicos
Condiciones de mercado

Valor neto (retorno, utilidad, …)

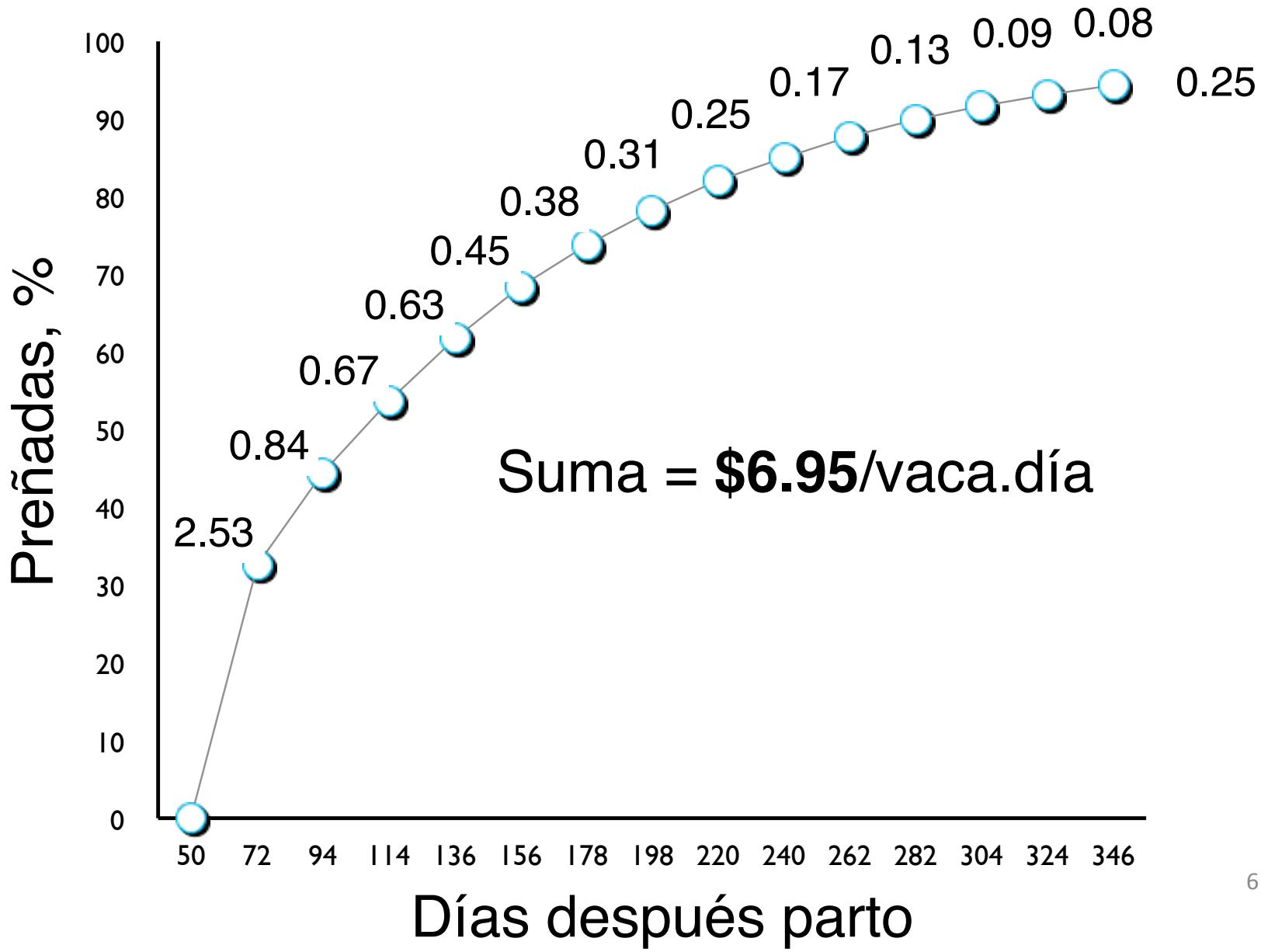
Diferencia
Entradas de efectivo
Salidas de efectivo

Dependientes de
Manejos reproductivos
Mayoría de impactos incluidos

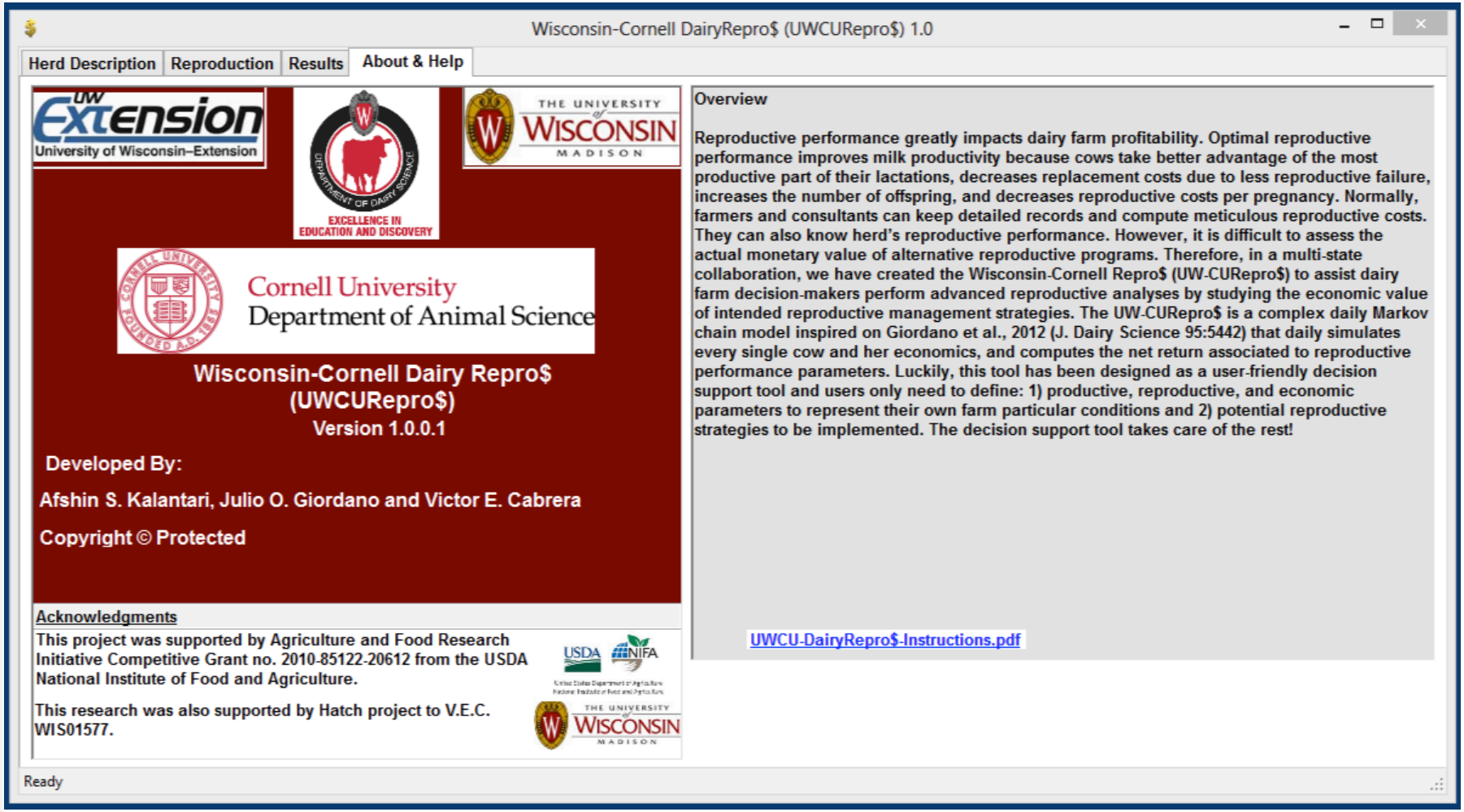
Reproducción vs. valor económico



Valorización sistemática

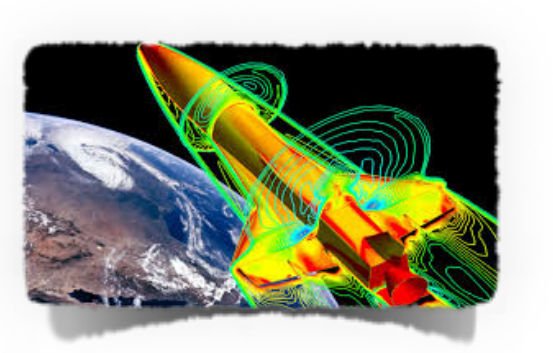


Wisconsin - Cornell Dairy Repro $



Wisconsin - Cornell Dairy Repro $

Herramienta
Decisiones de manejo de programas reproductivos



Provee
Valor económico de programas reproductivos:
- Específico para finca estudiada
- Proyecta posible cambios

Simula
El hato a través del tiempo
- Muestra cambios estructurales
- Calcula el valor económico
- Permite el mayor detalle al definir programas reproductivos

Describe el hato lechero

Parámetros del hato

Herd Parameters

Herd Size (#)	100
Average Body Weight (lb)	1,400
Involuntary Culling (%/yr)	35.0
Mortality Rate (%/yr)	4.0
Stillbirth (%)	4.9
Pregnancy Loss (%)	24.4

Parámetros económicos

Economic Parameters

Milk Price ($/cwt)	16.00
Cost Feed Lactating ($/lb DM)	0.08
Dry Period Fixed Cost ($/lb DM)	0.06
Female Calf value($)	136
Male Calf value ($)	50
Heifer Replacement Value($)	1,302
Salvage Value ($/lb)	0.526

Describe las curvas de lactancia

Niveles de referencia disponibles

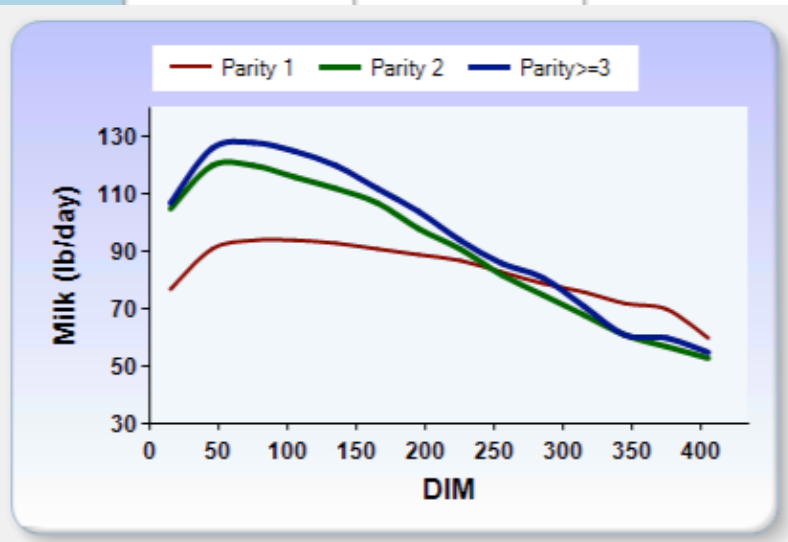
Lactation Curves (lb/cow/test)

Own Farm Lactations (Enter/Edit NUMBERS Below)

- Own Farm Lactations (Enter/Edit NUMBERS Below)
- Lactations of approximately 18,000 lb milk/cow/year
- Lactations of approximately 19,000 lb milk/cow/year
- Lactations of approximately 20,000 lb milk/cow/year
- Lactations of approximately 21,000 lb milk/cow/year
- Lactations of approximately 22,000 lb milk/cow/year
- Lactations of approximately 23,000 lb milk/cow/year
- Lactations of approximately 24,000 lb milk/cow/year
- Lactations of approximately 25,000 lb milk/cow/year
- Lactations of approximately 26,000 lb milk/cow/year
- Lactations of approximately 27,000 lb milk/cow/year
- Lactations of approximately 28,000 lb milk/cow/year
- Lactations of approximately 29,000 lb milk/cow/year
- Lactations of approximately 30,000 lb milk/cow/year

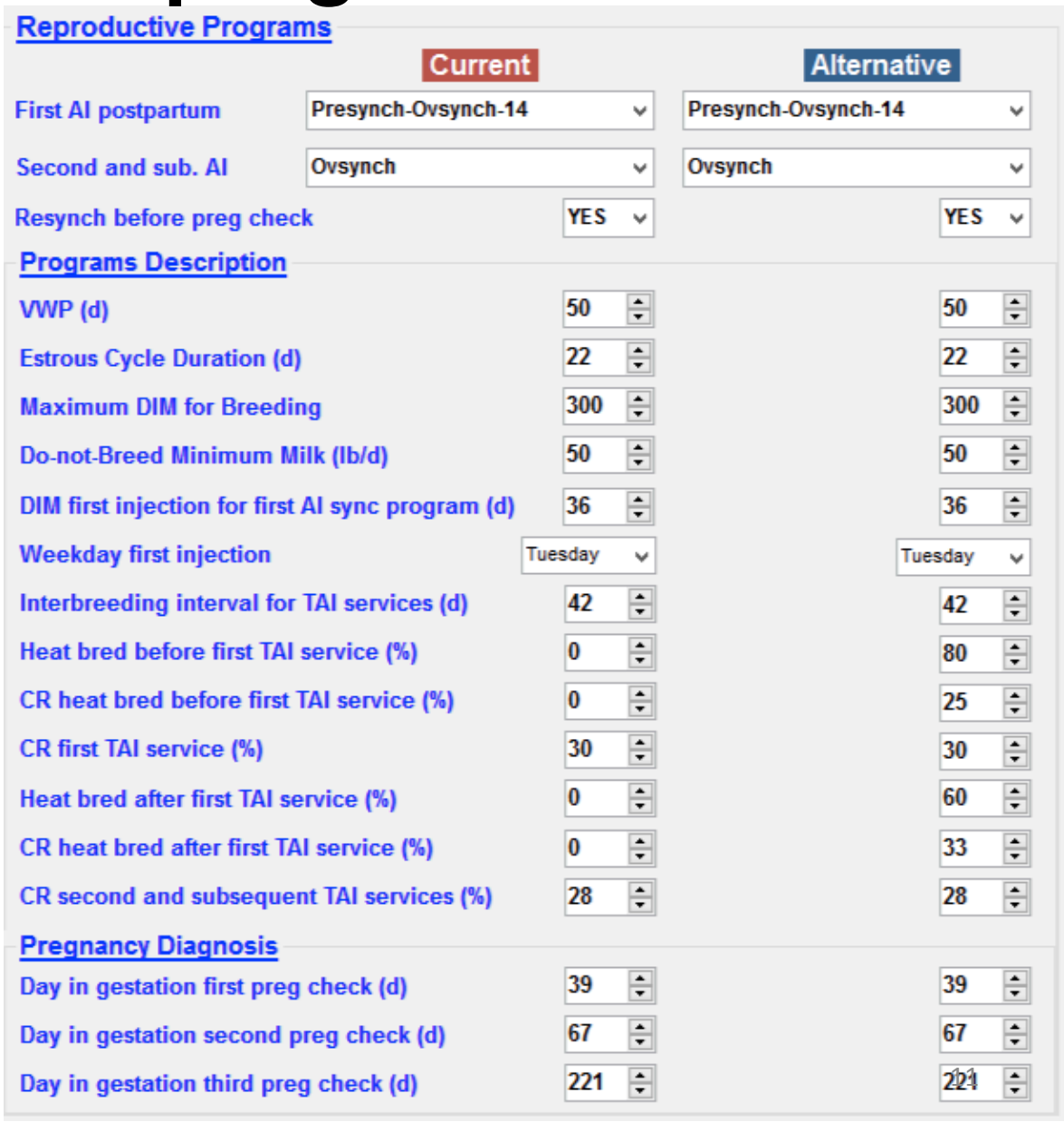
Registros de producción

DIM	Parity 1	Parity 2	Parity ≥3
15	77	105	107
45	91	120	126
75	94	120	128
105	94	116	125
135	93	112	120
165	91	107	112
195	89	98	104
2			
2			
2			
3			
3			
3			
4			



Describe y define programs reproductivos

Siempre contraste entre ACTUAL y ALTERNATIVO



Reproductive Programs

	Current	Alternative
First AI postpartum	Presynch-Ovsynch-14	Presynch-Ovsynch-14
Second and sub. AI	Ovsynch	Ovsynch
Resynch before preg check	YES	YES

Programs Description

	Current	Alternative
VWP (d)	50	50
Estrous Cycle Duration (d)	22	22
Maximum DIM for Breeding	300	300
Do-not-Breed Minimum Milk (lb/d)	50	50
DIM first injection for first AI sync program (d)	36	36
Weekday first injection	Tuesday	Tuesday
Interbreeding interval for TAI services (d)	42	42
Heat bred before first TAI service (%)	0	80
CR heat bred before first TAI service (%)	0	25
CR first TAI service (%)	30	30
Heat bred after first TAI service (%)	0	60
CR heat bred after first TAI service (%)	0	33
CR second and subsequent TAI services (%)	28	28

Pregnancy Diagnosis

	Current	Alternative
Day in gestation first preg check (d)	39	39
Day in gestation second preg check (d)	67	67
Day in gestation third preg check (d)	221	221

Eficiencia esperada de referencia

Fertilidad esperada al
primer servicio de tiempo fijo

Synchronization Program	VWP (d)	Conception Rate (%)	
		Mean	Range
Presynch-Ovsynch-14	70-85	37	(32-42)
Presynch-Ovsynch-12	70-85	42	(37-47)
Presynch-Ovsynch-11	70-85	43	(37-47)
Presynch-Ovsynch-10	70-85	44	(37-47)
Double-Ovsynch	70-85	47	(40-50)
G-6-G	70-85	45	(37-47)
Ovsynch	60-75	33	(30-37)
Cosynch-72	60-75	26	(25-33)
Presynch-Ovsynch-12 w/CIDR	70-85	45	(40-50)
Double-Ovsynch w/ CIDR	70-85	50	(43-53)
Ovsynch w/ CIDR	60-75	36	(40-50)
Cosynch-72 w/ CIDR	60-75	32	(33-40)

Modificado de Giordano et al., 2012

Eficiencia esperada de referencia

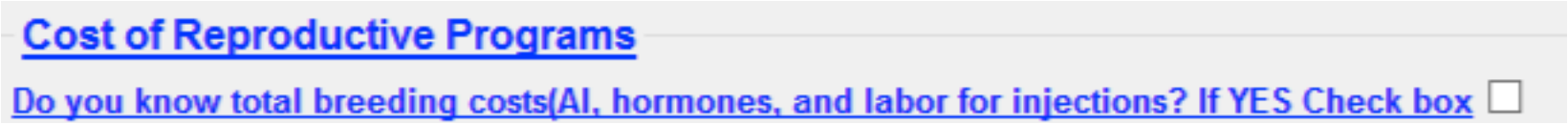
Fertilidad esperada a los siguientes servicios de tiempo fijo

Synchronization Program	Interbreeding Interval (d)	Conception Rate (%) Mean	Range
Ovsynch-Day 25	35	27	(24-30)
Ovsynch-Day 32	42	30	(25-35)
Ovsynch-Day 39	49	28	(25-32)
Double-Ovsynch	49	38	(33-42)
Short-Double-Ovsynch	42	34	(30-38)
HGPG (hCG-7d-Ovsynch)	35	37	(33-41)
GGPG (GnRH-7d-Ovsynch)	35	34	(27-37)
G-6-G	49	35	(32-38)
Cosynch-72-Day 25	35	23	(20-25)
Cosynch-72-Day 32	42	28	(24-32)
Cosynch-72-Day 39	49	25	(23-28)
Ovsynch-Day 32 w/ CIDR	42	33	(28-38)
Double-Ovsynch w/ CIDR	49	41	(36-45)
Short-Double-Ovsynch w/CIDR	42	37	(33-41)
HGPG (hCG-7d-Ovsynch) w/CIDR	35	40	(36-41)
GGPG (GnRH-7d-Ovsynch) w/ CIDR	35	35	(30-40)
G-6-G w/CIDR	49	38	(33-41)
Cosynch-72-Day 32 w/CIDR	42	31	(27-35)

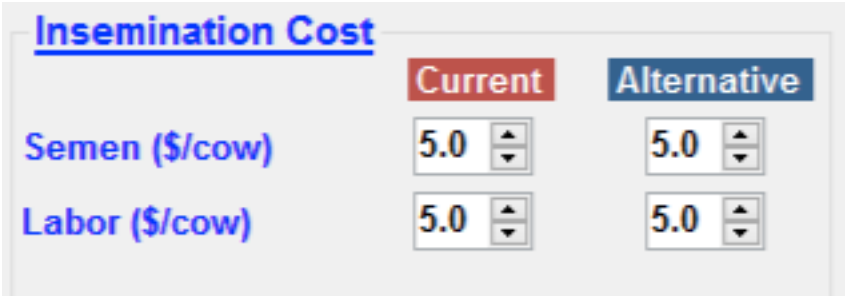
Modificado de Giordano et al., 2012

Define costos de programas

Tienes los costos totales de reproducción?

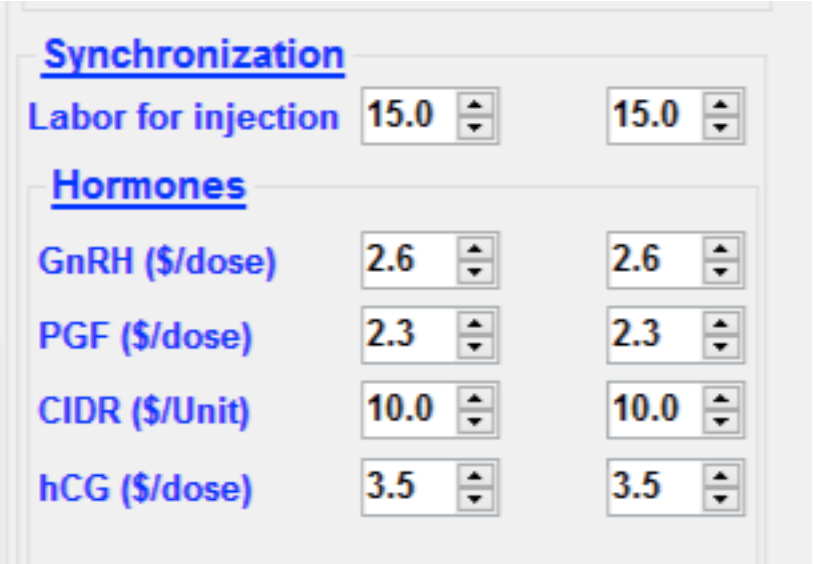


Inseminación



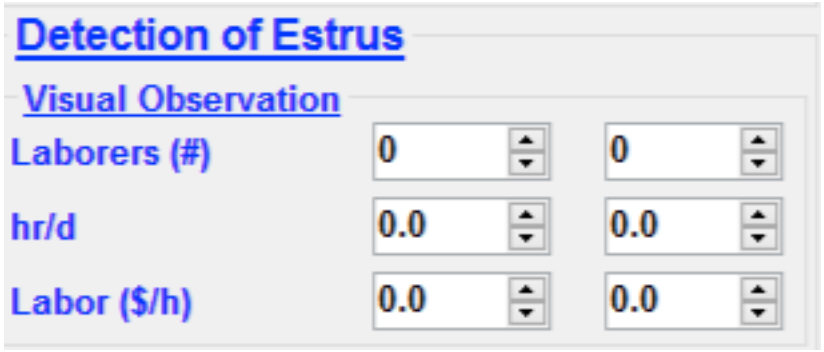
Diagnóstico de preñez

Hormonas

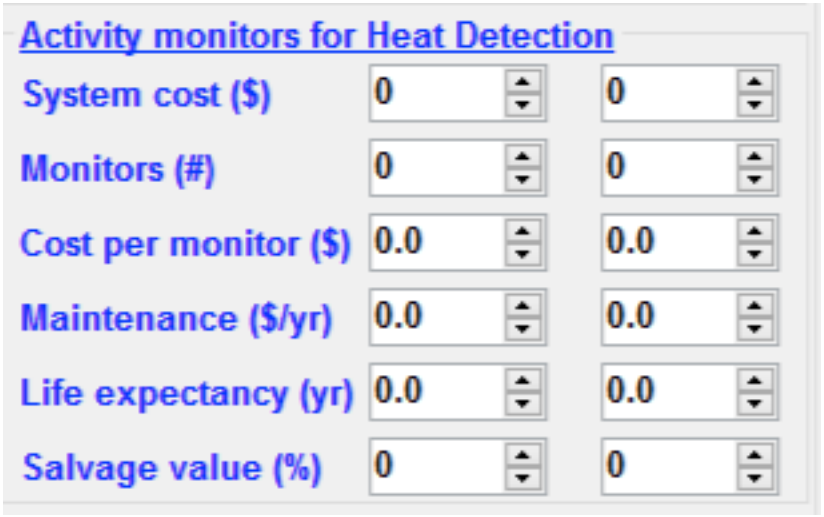


Define costos de programas

Detección visual de estrus



Uso de monitores



Define costos de programas

Labor requerida día a día

Labor Required for Injections and Pregnancy Diagnosis

☐ Reset default values to zero

		Desc	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Current	Injections	Laborers	0.0	2.0	0.0	2.0	0.0	0.0	0.0
		Hours/d	0.0	0.6	0.0	0.9	0.0	0.0	0.0
		# Cows	0.0	36.0	0.0	52.0	0.0	0.0	0.0
	Pregnancy Diagnosis	Hours/d	0.0	0.6	0.0	0.9	0.0	0.0	0.0
		# Cows	0.0	36.0	0.0	52.0	0.0	0.0	0.0

		Desc	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Alternative	Injections	Laborers	0.0	2.0	0.0	2.0	0.0	0.0	0.0
		Hours/d	0.0	0.6	0.0	0.9	0.0	0.0	0.0
		# Cows	0.0	36.0	0.0	52.0	0.0	0.0	0.0
	Pregnancy Diagnosis	Hours/d	0.0	0.6	0.0	0.9	0.0	0.0	0.0
		# Cows	0.0	36.0	0.0	52.0	0.0	0.0	0.0

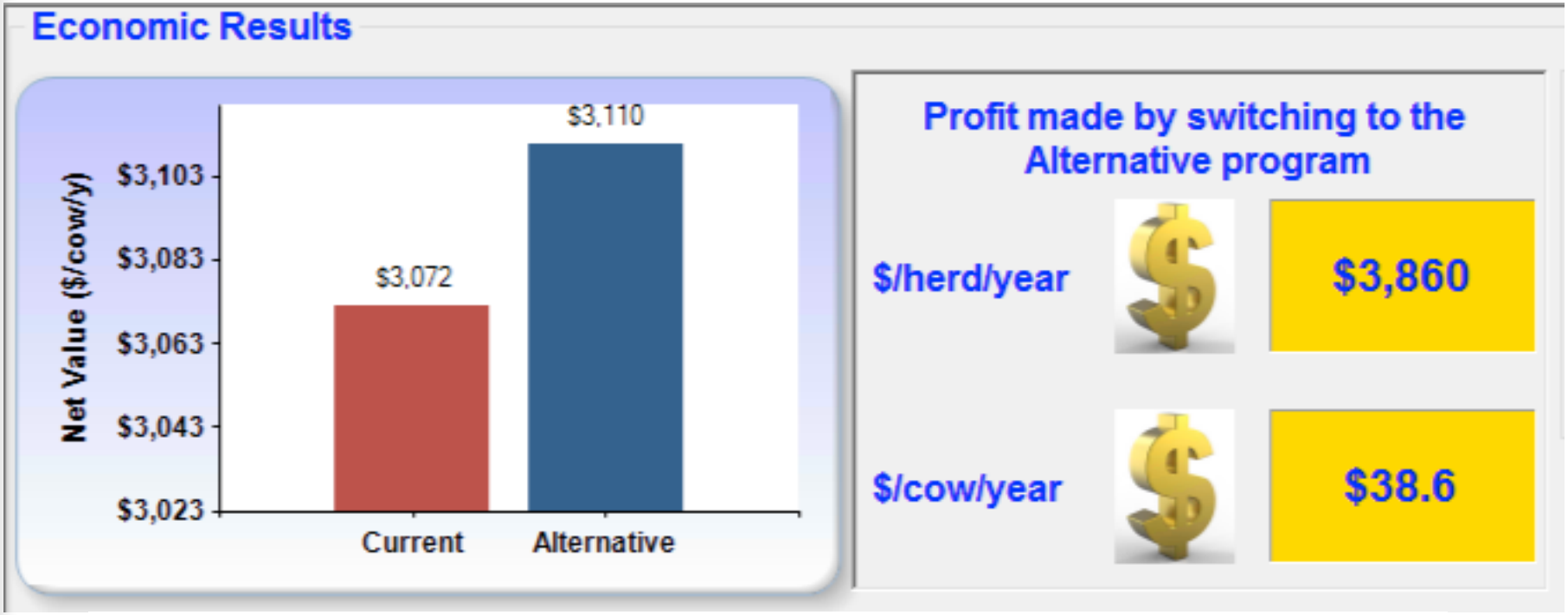
Corre un análisis

Dependiendo de los procesadores

Entre 2 y 10 minutos

Estudia los resultados

Resultados económicos generales



Programa alternativo es **$38.6/vaca.año** mejor

Estudia los resultados

Resultados económicos desagregados

Contribution to Net Value

Item	Current	Alternative	Diff
Total Net Value ($/cow/y)	3,071.8	3,110.4	38.6
IOFC ($/cow/y)	3,266.8	3,280.7	13.9
Replacement Cost ($/cow/y)	-191.0	-183.9	7.1
Reproductive Cost ($/cow/y)	-41.3	-27.6	13.7
Calf Value ($/cow/y)	37.3	41.2	3.9

Programa alternativo:

- Mayor ingreso sobre costos de alimentación
- Menor costos de reemplazo
- Menor costo reproductivo
- Mayor valor de terneras

Estudia los resultados

Estructura del hato de acuerdo a reproducción

Cows Leaving the Herd

Item	Current	Alternative	Diff
Total Culling (%)	41.2	39	-2.2
Non-Reproductive Culling (%)	26.3	25.3	-1
Mortality (%)	4.1	3.9	-0.2
Reproductive Culling (%)	10.8	9.8	-1

Menos descartes y mortalidad

Relación entre necesidad y disponibilidad de reemplazos

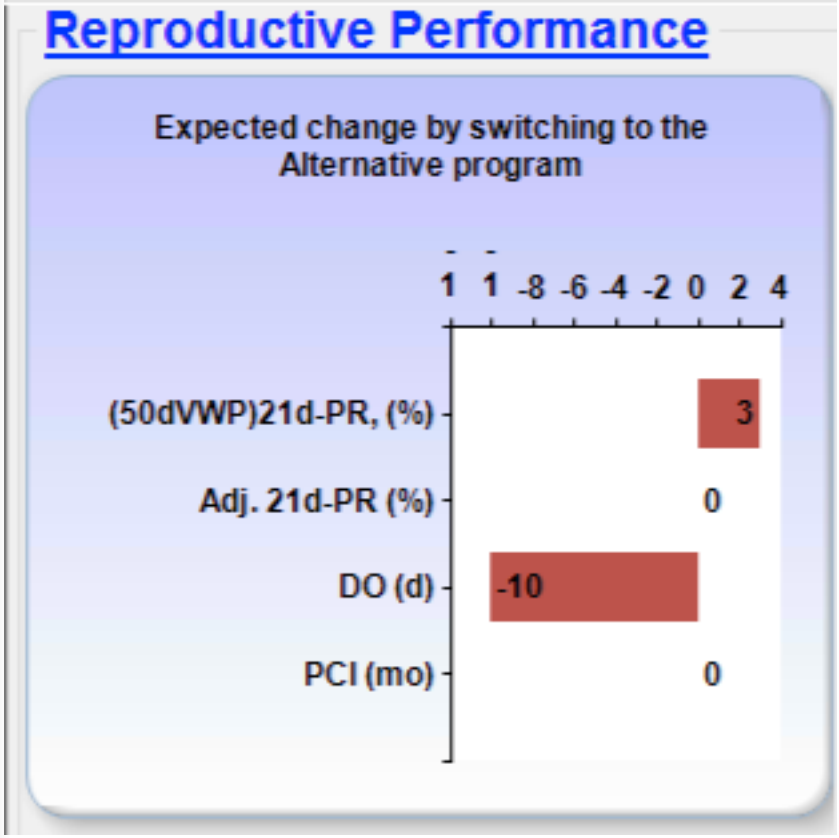
Heifer Supply and Demand

Item	Current	Alternative
Heifer Supply (% of herd/year)	40.9	41.4
Heifer Demand (% of herd/ye...	41.2	39.1
Heifer Balance	-0.3	2.3

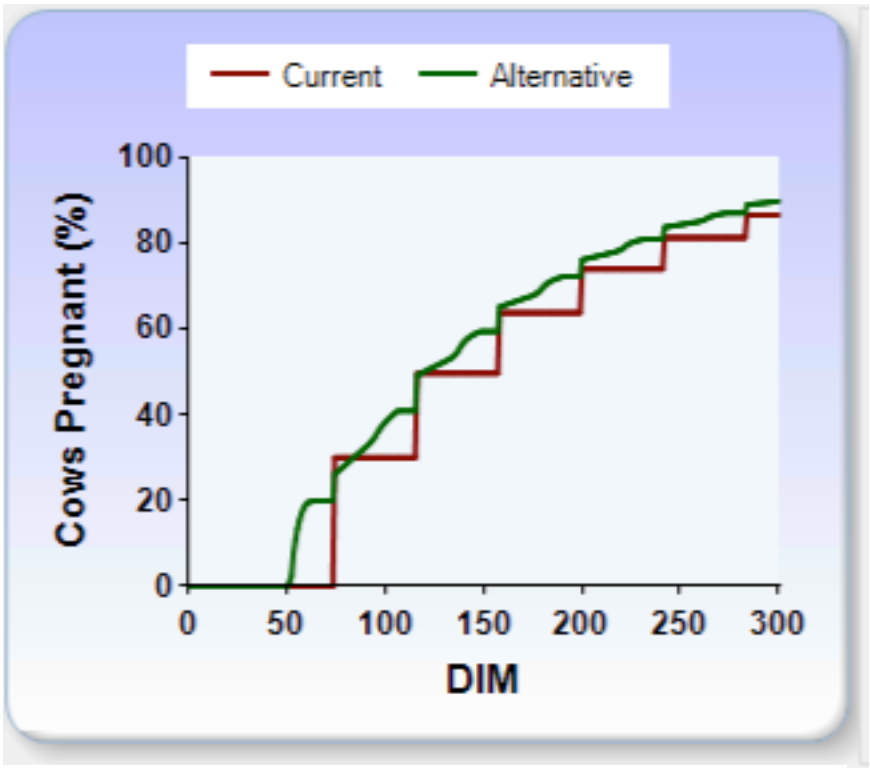
Mejor balance con alternativo

Estudia los resultados

Parámetros importantes de reproducción



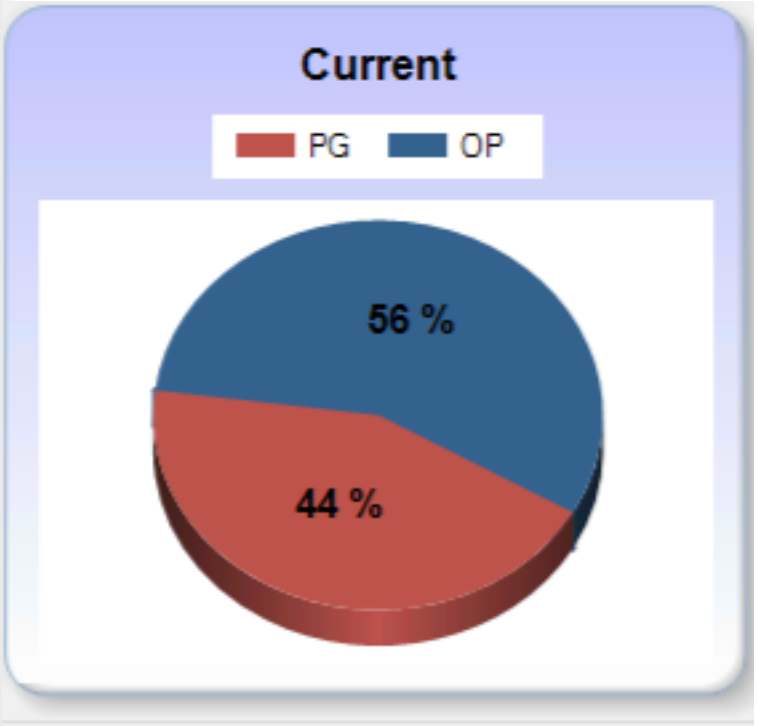
Menos período de espera voluntaria y días abiertos

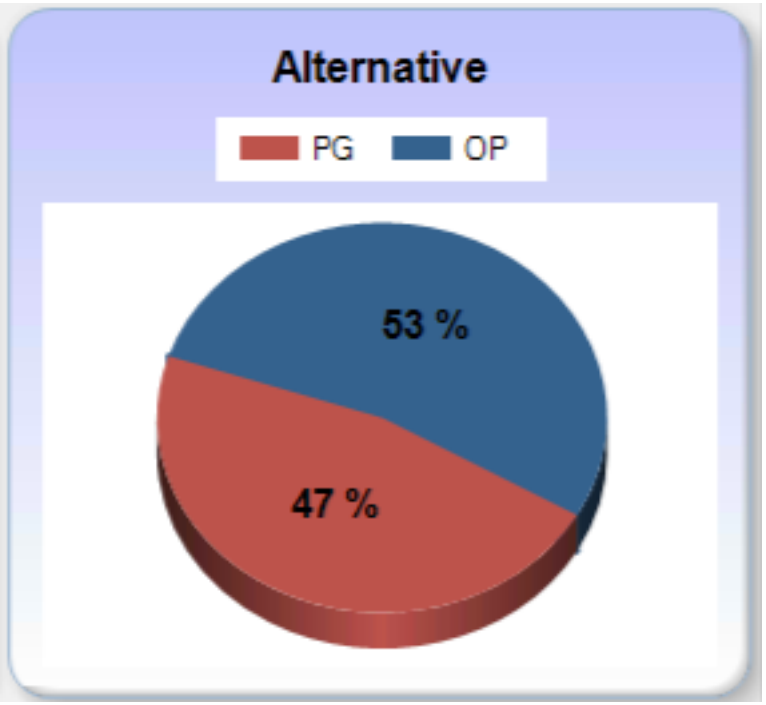


Curvas de sobre-vivencia de programas Muestra momentos en cuales vacas quedan preñadas

Estudia los resultados

Distribución de vacas de acuerdo a su estadio de preñez

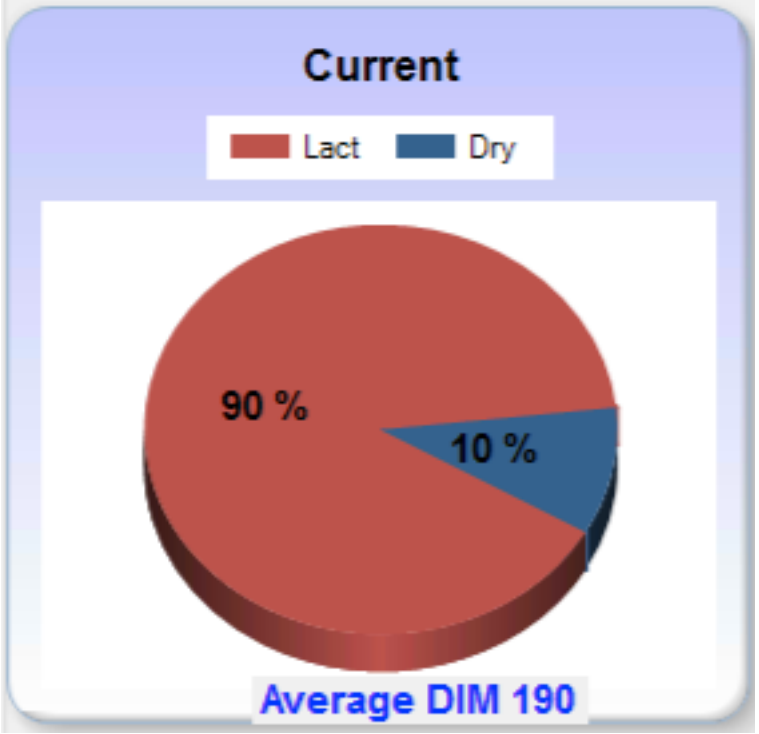


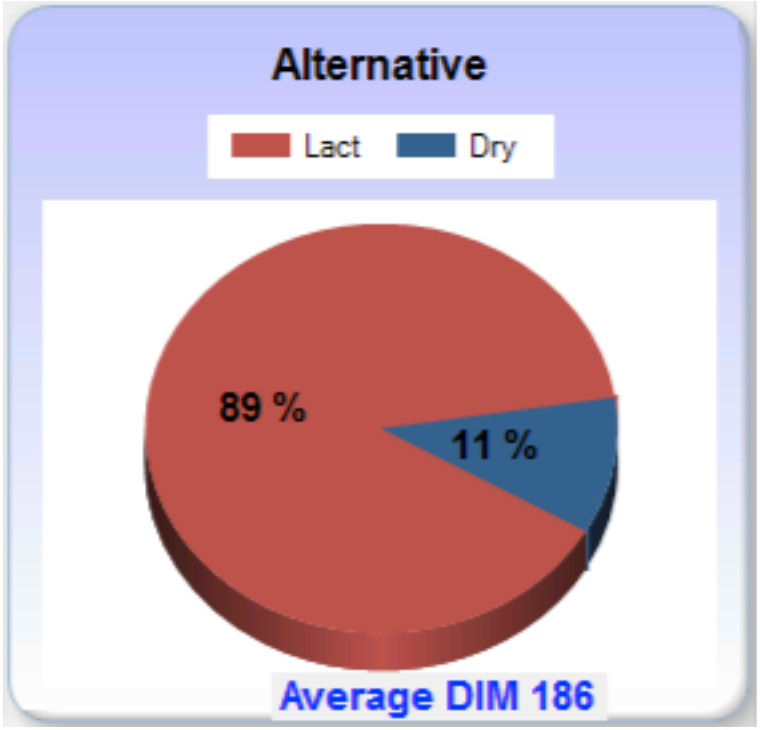


Programa alternativo tiene 3% mas de vacas preñadas

Estudia los resultados

Distribución de vacas de acuerdo a su estadio de producción

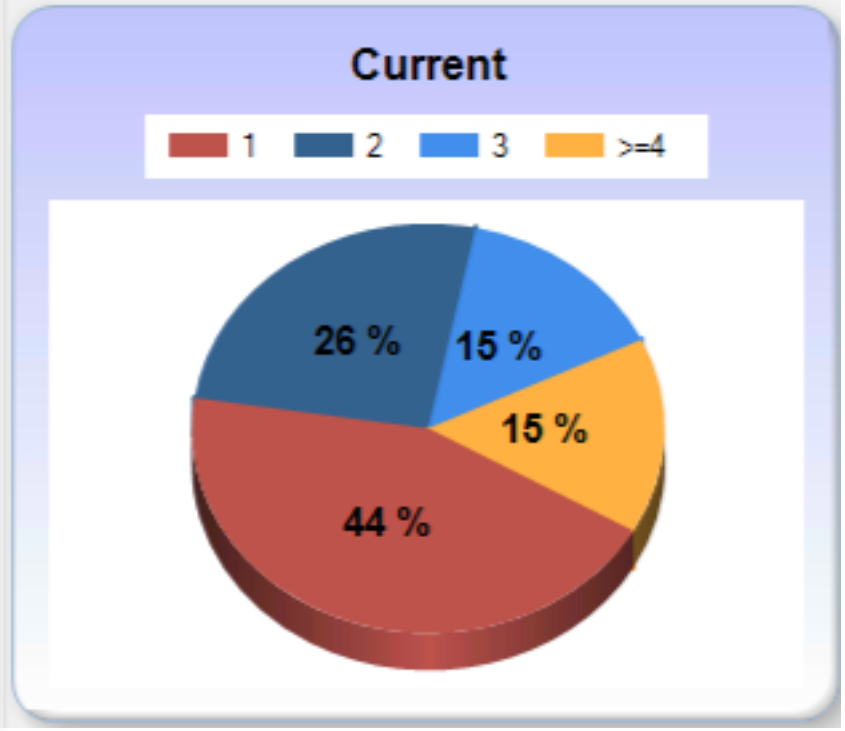


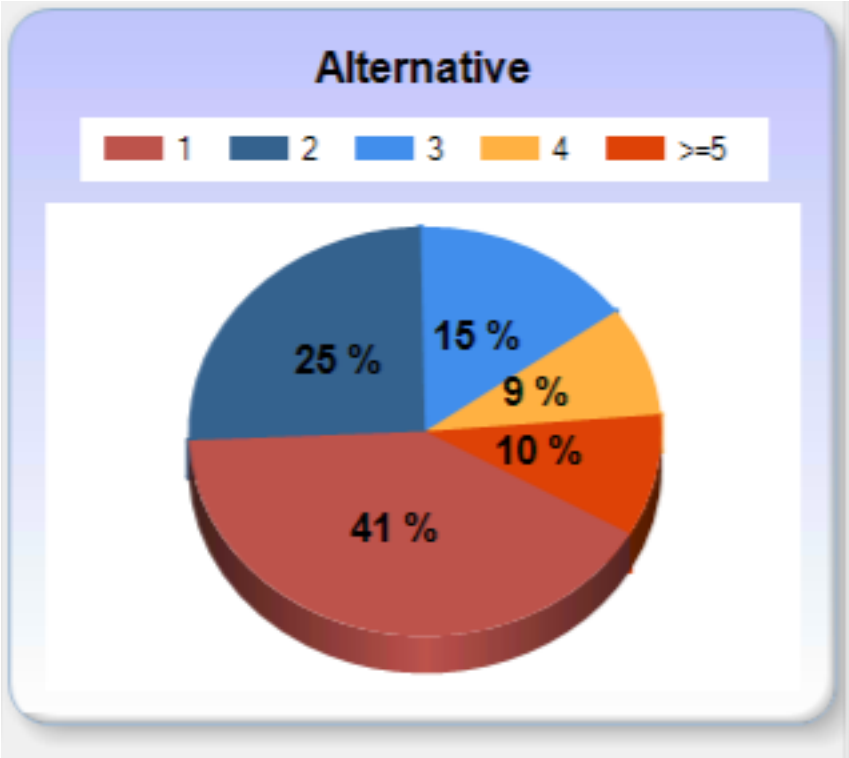


Programa alternativo tiene 1% mas de vacas secas

Estudia los resultados

Distribución de vacas de acuerdo a su lactancia





Programa alternativo tiene 3% menos de vacas en primera lactancia

Documentación asociada

Manual de instrucción y documentación

THE UNIVERSITY of WISCONSIN MADISON

Cornell University
Department of Animal Science

UWCU-DairyRepro$: A Reproductive Programs Economic Analysis Tool

Afshin S. Kalantari, Julio O. Giordano, and Victor E. Cabrera

Available at:

University of Wisconsin: DairyMGT.info : Tools : Reproduction

Cornell University: http://www.ansci.cornell.edu/dm/resources.html

Publicación en el Journal of Dairy Science

J. Dairy Sci. 95:5442–5460
http://dx.doi.org/10.3168/jds.2011-4972

A daily herd Markov-chain model to study the reproductive and economic impact of reproductive programs combining timed artificial insemination and estrus detection

J. O. Giordano,[1] A. S. Kalantari, P. M. Fricke, M. C. Wiltbank, and V. E. Cabrera[2]
Department of Dairy Science, University of Wisconsin-Madison 53706