

# Ulster Grassland Society

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## Does the Family Dairy Farm have a Future ?



Trevor Alcorn

2015 Nuffield Scholar

The  
Thomas Henry  
Foundation.



Sponsored by: The Thomas Henry Foundation



# Nuffield Farming Scholarship Trust

- Founded in 1947
- William Morris – Lord Nuffield
- Travelled to Detroit, USA
- Nuffield & MG
- 20 UK scholars each year

*‘Leading positive  
change in agriculture’*



# Nuffield Nutshell

- If a typical, 100 cow family dairy farm remains static, will they have a future in 10 – 15 years time?
- Components that will help maintain the future viability of family dairy farms.
- U.K, Germany, Denmark, Ireland, USA, China & France



# Study Locations







# What is a Family Farm?



- Crave brothers  
Wisconsin
- 1978 rented a 57 cow  
dairy farm together
- Today
  - 1500 cows
  - 2700 acres
  - Cheese business.
- 50 staff employed
- Is this a family farm?





# Types of Dairy Farm



- Sunset
- Lifestyle
- Niche
- Commodity producer



# What type of farmer are you?

## SUNSET

- No successor
- No significant debt
- Moderate level of farm performance
- Happy to coast along until retirement

01/10/2015

# Lifestyle

- Has chosen that way of life
- Partner may work off farm
- Likes the countryside environment for family
- Use of robotics to reduce labour





# Niche

- Diversified to supplement income
- Pedigree genetics/ stock sales
- Ice cream, yoghurt or cheese production
- Organic or specific milk to meet market requirement
- Open farm/ farm shop

30/03/2015





# N.I. dairy farms??

## Commodity

- Large scale
- Sole focus on milk production
- Managed like a corporate business – profit driven
- High degree of technical competence and efficiency
- May carry significant debt
- Progressive go ahead business with ambition

29/09/2015



# Rhys Williams

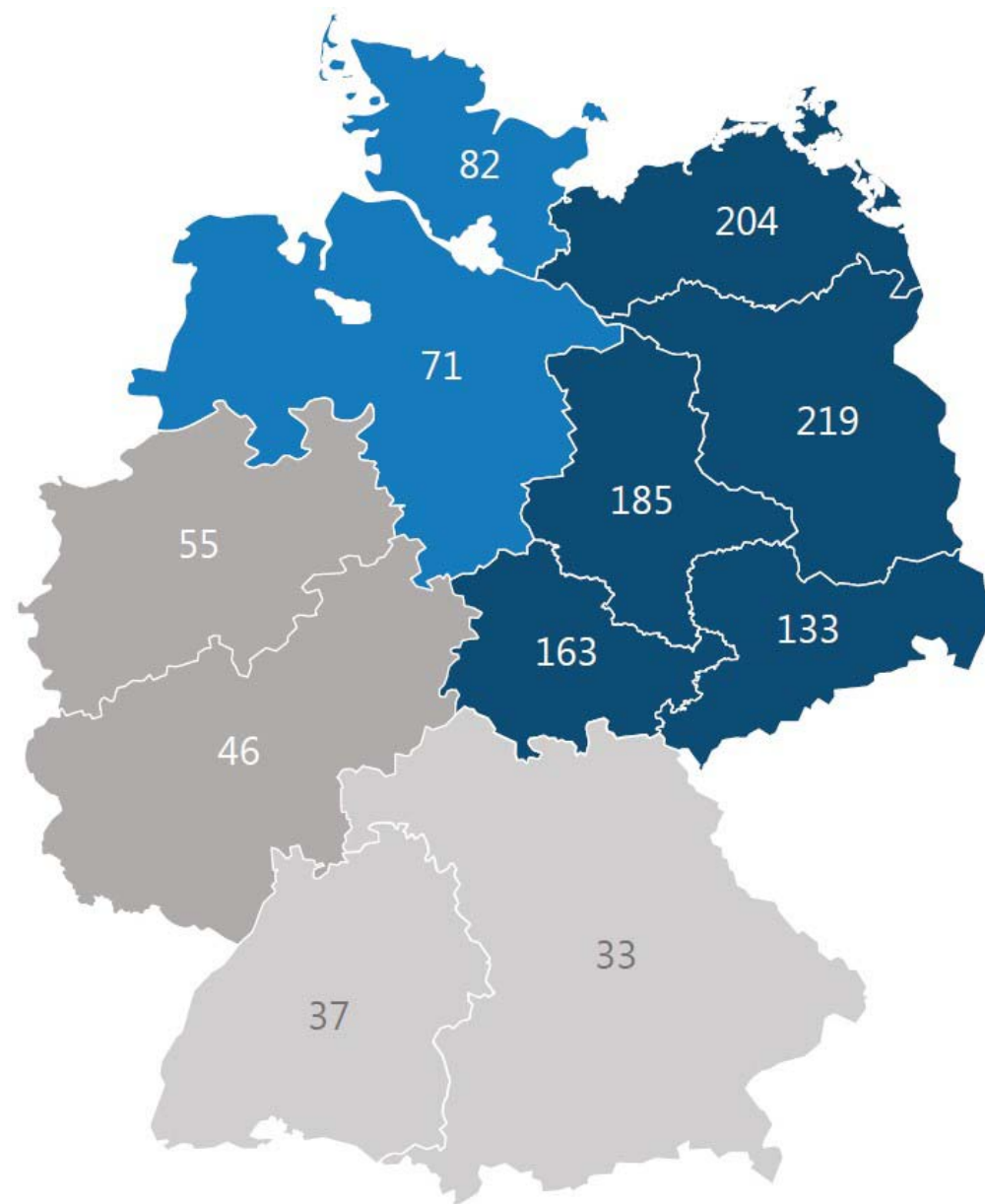


- 1<sup>st</sup> Generation dairy farmer
- North Wales
- Gained experience in N.Z.
- Started share milking with David Wyn Finch 2005
- Bought own farm 2011
- Share milking on 3 other farms
- **No family influence!**





# Germany - Opportunity



| Human population       | 80.62 million |
|------------------------|---------------|
| No. of dairy farms     | 76,893        |
| No. of dairy cows      | 4.26 million  |
| Average herd size      | 55.5 cows     |
| Average milk yield     | 7352kg        |
| Annual milk production | 31 bn litres  |

- Europe's largest milk producer
- Fall of the Berlin wall 1989.
- Opportunities in the east!
- Innovation in the south.





# Ekkehard Herrmann



Communication

Leadership

- 4 co-op farms managed
- 6500 ha farmed
- 1000 ha owned
- 15 m litres milk sold
- Diverse business
- 100 staff employed

22/06/2015



23/06/2015





22/06/2015





# Innovation





# Innovation



27/09/2016





# Labour efficiency



28/09/2016



# Take Home Messages - Germany



- Farmers are prepared to adapt, innovate & expand to survive.
- Diverse businesses, not just dairying, of various scales.
- Communication is key with both employees & family.
- Need a positive outlook!
- Grasp opportunities as they arise!



# Denmark – Positive Attitude



|                         |                     |
|-------------------------|---------------------|
| <b>Human population</b> | <b>5.68 million</b> |
| No. dairy farms         | 3,293               |
| No. dairy cows          | 570,000             |
| Average herd size       | 173 cows            |
| Average milk yield      | 9,961 kg            |
| Annual milk production  | 5.3 bn litres       |

- 2005 – 6,253 dairy farms
- 2016 – 3,293 dairy farms
- Increasing number of farms producing 1.5 – 5m litres
- Debt drives performance?



30/06/2015





# Jorgen Frandsen



- 2000 head finished per year
- 1450 in yard at anyone time
- 90% HolFr bulls
- Calves bought from local farmers
- 50kg - £60 (+£3/kg max 70Kg)

01/07/2015





01/07/2015





01/07/2015





MULLERUP

01/07/2015





29/06/2015



# Take Home Messages - Denmark



- Managing debt – key.
- High level of technical & labour efficiency.
- Small scale dairy farms declining rapidly!
- Farms producing > 1.5m litres now the 'norm'.
- Stringent animal recording database.
- Antibiotic use declining.







# Cork – Cost of production



|                         |                |
|-------------------------|----------------|
| <b>Human population</b> | <b>542,196</b> |
| No. dairy farms         | 4277           |
| No. dairy cows          | 292,044        |
| Average herd size       | 70 cows        |
| Average milk yield      | 4800kg         |
| Annual milk production  | 1.41 bn litres |



- **Largest dairying county in Ireland**
- **Similar number of cows to N.I.**
- **But.... smaller herd size & lower yield**



# Glenilen Farm



- Based in Drimoleague, west Cork
- 70 cow dairy herd.
- 1997 started farm house baking to sell at local market.
- Yoghurts, deserts & butter produced
- Today processing 1.3m litres annually.
- 5 – 10 % annual growth







# Take Home Messages - Cork



- Family farm orientated with relatively small herds.
- Mild year round climate ideal for grass growth & utilisation.
- Favourable cost of production.
- Real potential to increase milk output.

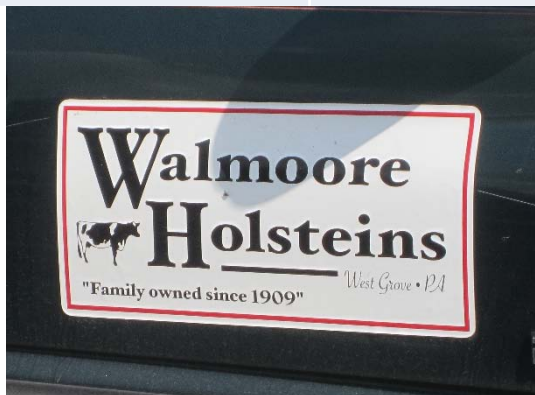




# USA - Scale



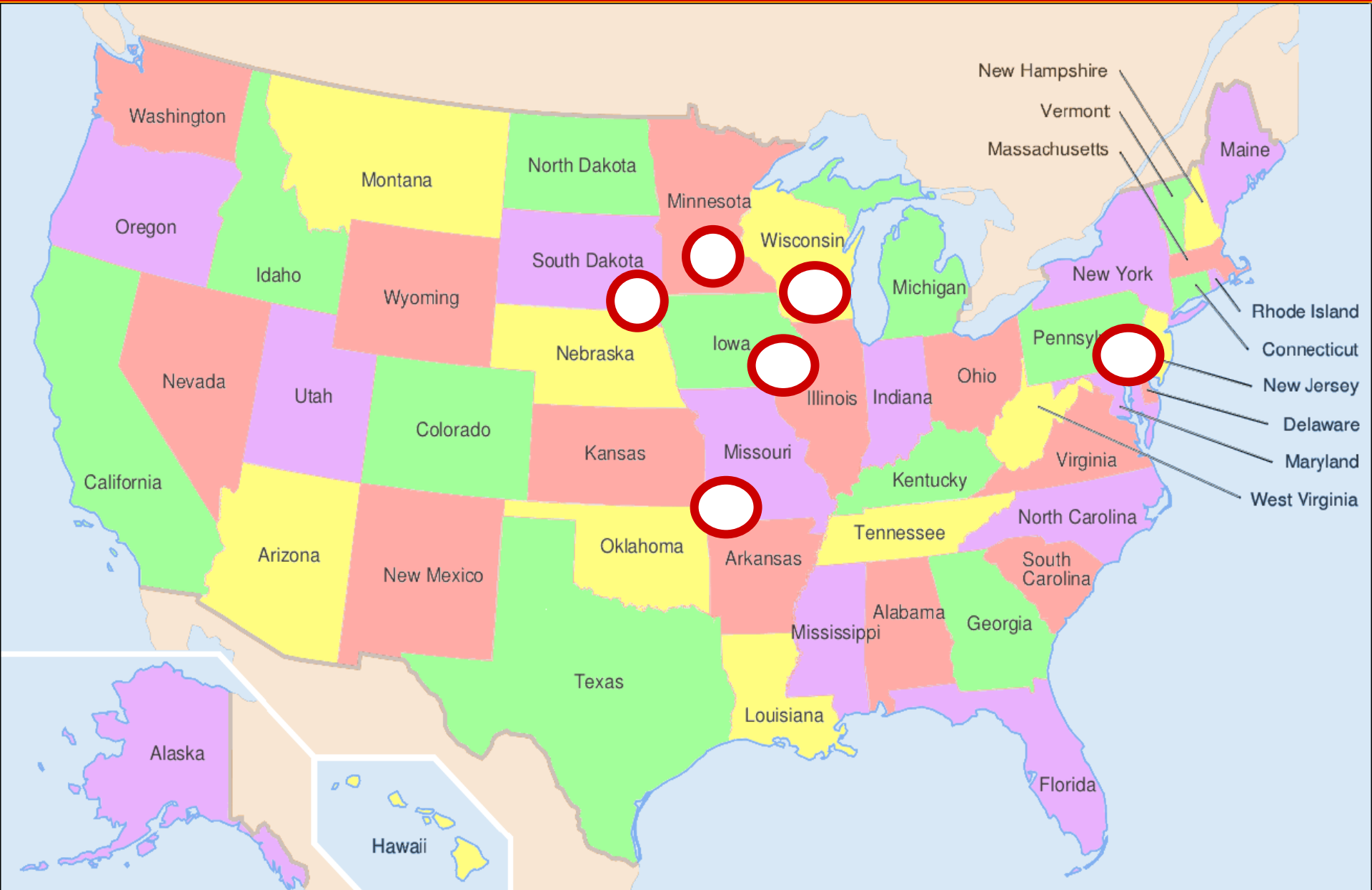
| Human population       | 318.9 million          |
|------------------------|------------------------|
| No. dairy farms        | 41,809                 |
| No. dairy cows         | 9.3 million            |
| Average herd size      | 223                    |
| Average milk yield     | 10,178 kg              |
| Annual milk production | 95 billion litres      |
| Milk market            | 80% liquid, 10% cheese |



- World's largest milk producer
- Almost 15% of world's milk production
- 97% of farms still family owned & managed, but on a different scale!
- 1992 – 135,000 dairy farms
- 2016 – 42,000 dairy farms



# USA





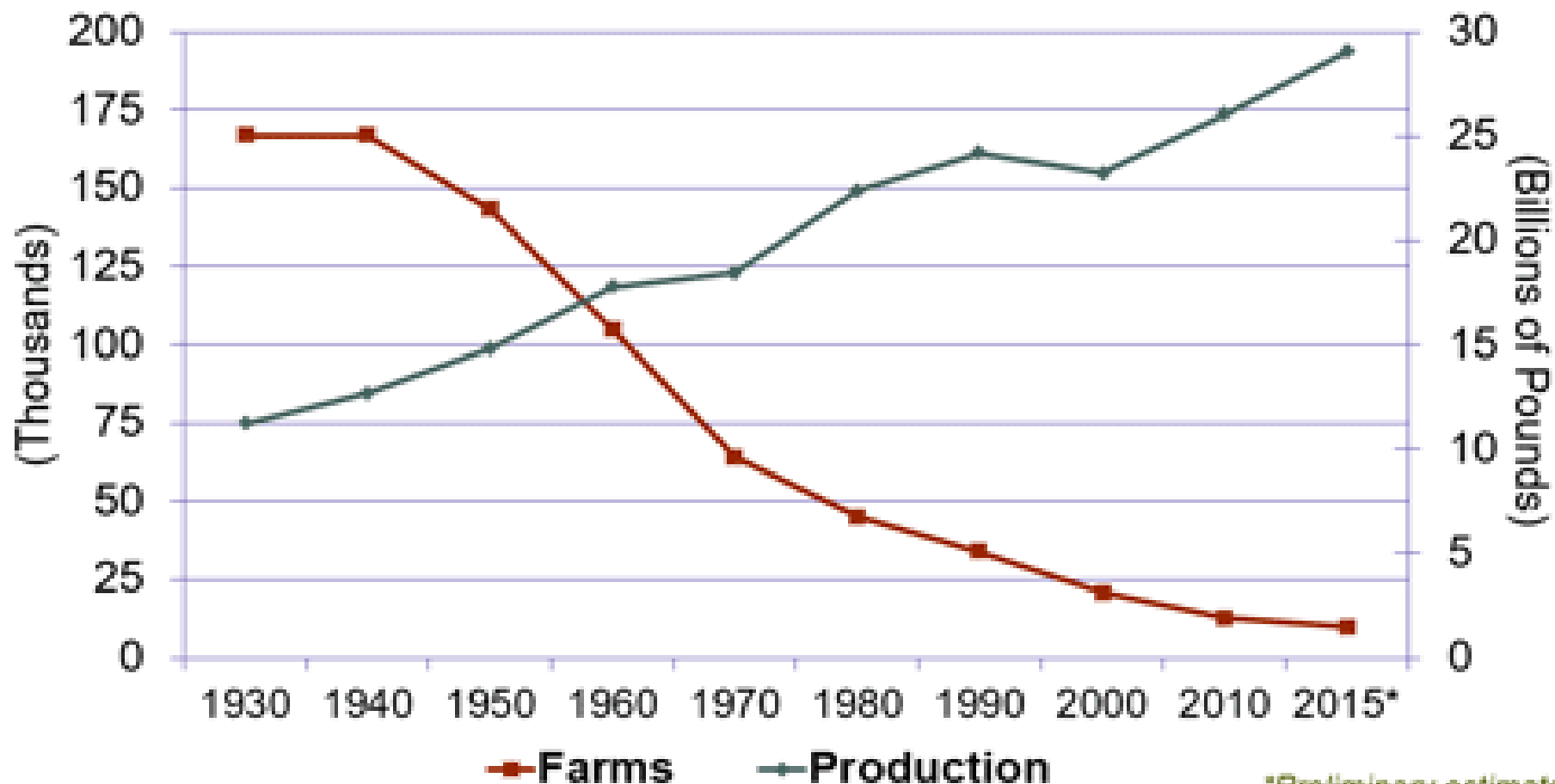
# Fewer Family Farms - Wisconsin



## Dairy Farms & Milk Production, 1930-2015\*

# of Farms

Milk Production



\*Preliminary estimate

Source: USDA/NASS, Milk Production



# New Sweden Dairy







21/09/2015



21/09/2015



# Dr Gordie Jones

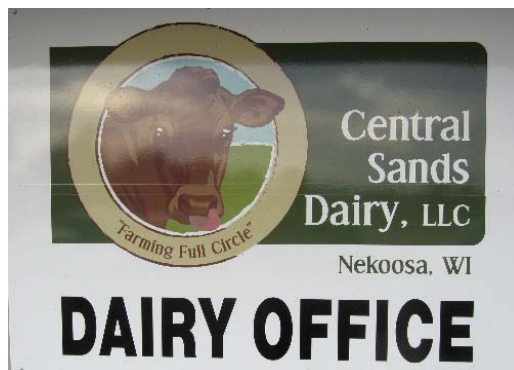


## 3 basic principles of dairy herd management -

A – Air

B – Bunk

C – Comfort







24/09/2015



23/09/2015





03/10/2015





THE BAERWOLF FAMILY

30/09/2015



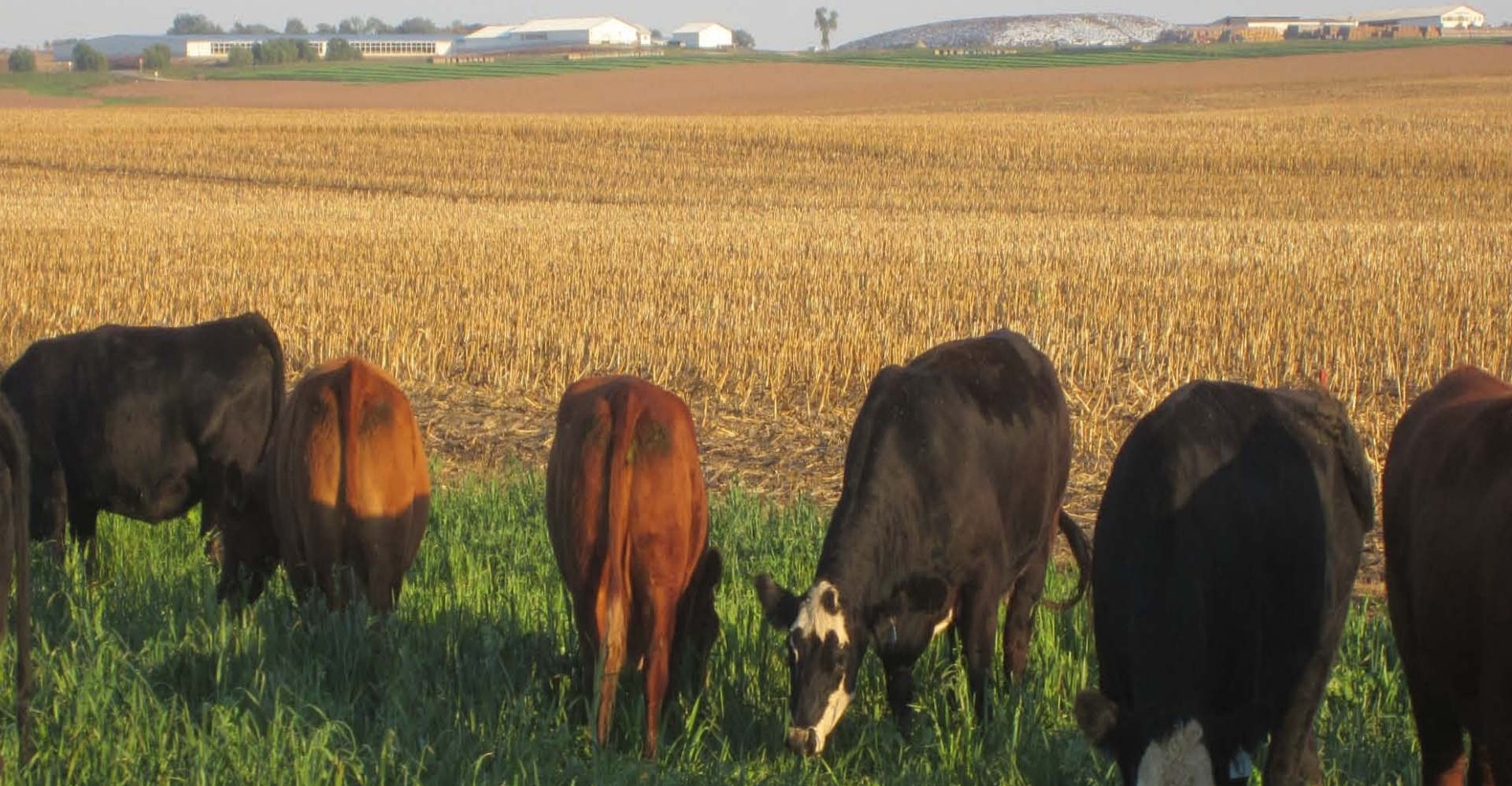


# Elliott Family





# Norden & Drumgoon Dairies





# Scale & Efficiency



25/09/2015



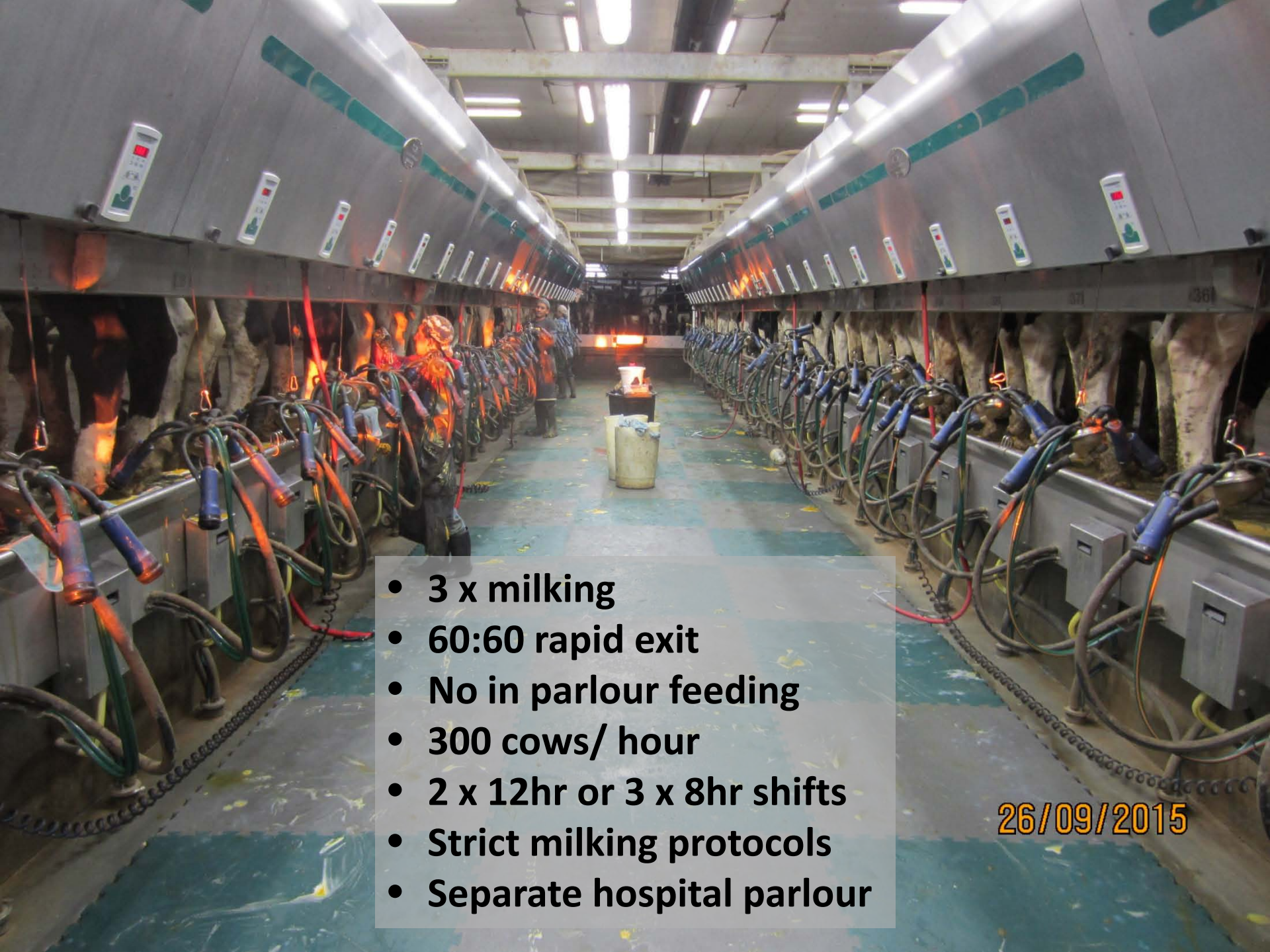
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26/09/2015





- 3 x milking
- 60:60 rapid exit
- No in parlour feeding
- 300 cows/ hour
- 2 x 12hr or 3 x 8hr shifts
- Strict milking protocols
- Separate hospital parlour

26/09/2015





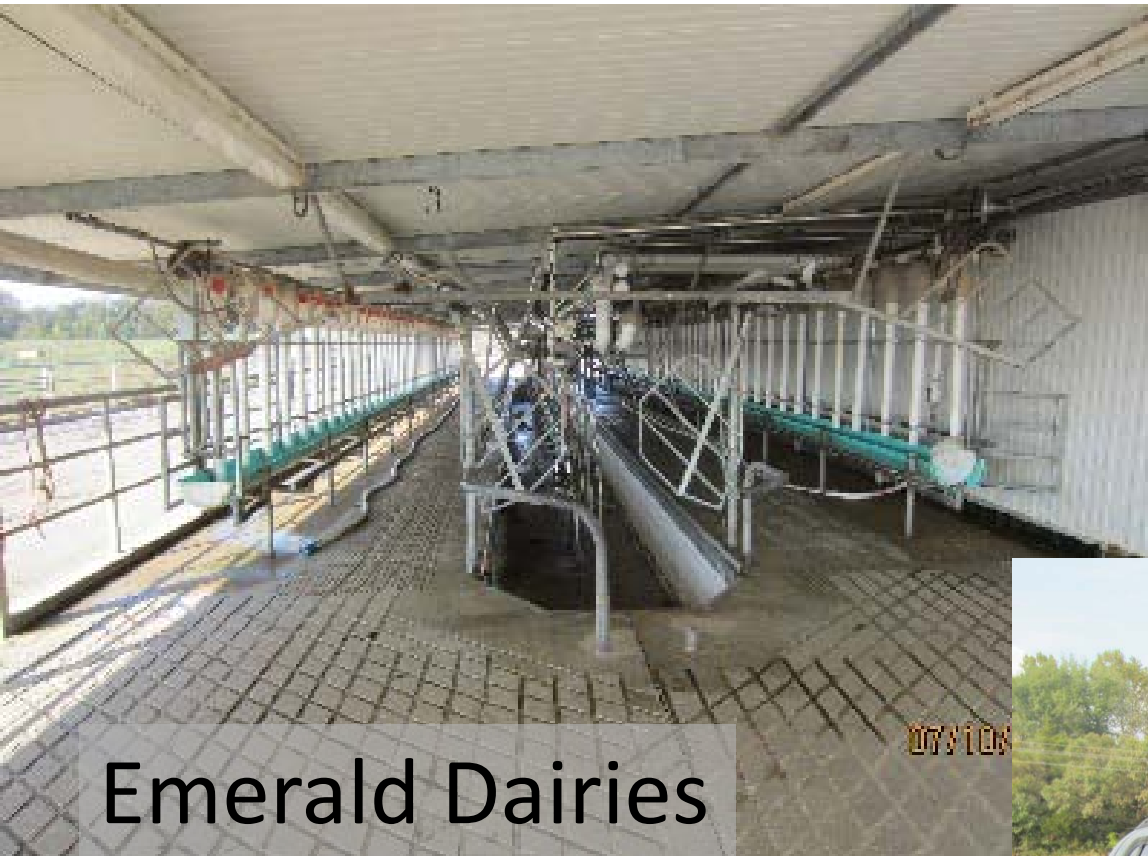








# Grasslands, South West Missouri



Emerald Dairies

- N.Z based company
- Irish Investors
- 4200 ha Missouri
- N.Z type system



Niall Murphy

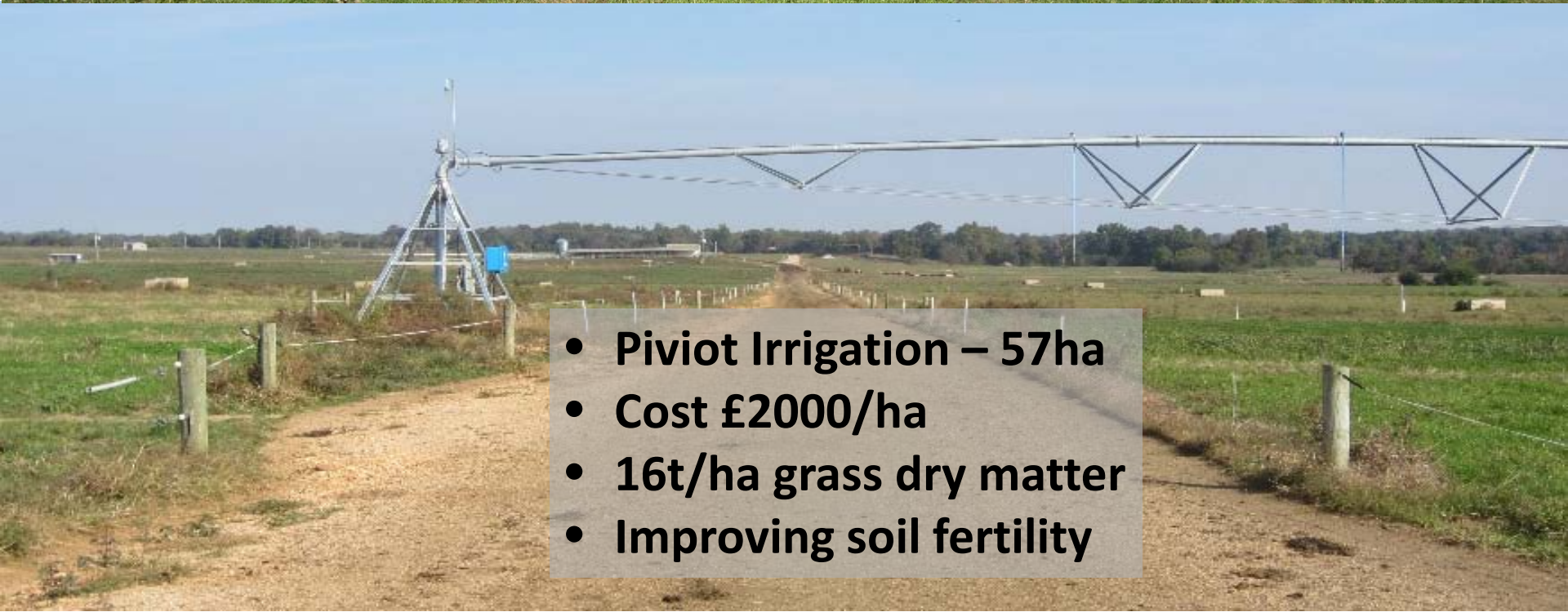
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07/10/2015





- **Pivot Irrigation – 57ha**
- **Cost £2000/ha**
- **16t/ha grass dry matter**
- **Improving soil fertility**





# Diversification







# Innovation







# The Amish







## Alvin Lapp – Lancaster

- 64 cow tie stall barn
- £5000/ cow











# Take Home Messages - USA

- Family farms still dominate – but of an increasing scale.
- Smaller family farms have had to adapt & innovate to survive.
- Large scale dairies are very specialised, efficient & focused.
- Expansion is based on cows & buildings, not land!



# China



- Vast
- 1.39 bn (19%)
- Beijing – 21.7 m
- N.I. – 1.81m
- People & traffic
- Affluent
- Strong culture
- Rural decline





# Dairy Farms



|                             |                |
|-----------------------------|----------------|
| Human population            | 1.39 bn        |
| No. dairy farms             | 1.71m          |
| No. dairy cattle            | 14.85m         |
| Average herd size           | 9 dairy cattle |
| Average milk yield          | <6000          |
| Annual milk production      | 38 bn          |
| No farms >1000 dairy cattle | 1426           |

- 2006 81% dairy farms had <5 COWS
- Still recovering from 2008 melamine scandal
- Serious mistrust of domestic dairy produce
- Shift from small family farms to large scale corporate type farms
- 'Americanised' total confinement systems





# China







# Dairy Products







# Rural China



26/04/2016



26/04/2016





26/04/2016



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21/04/2016

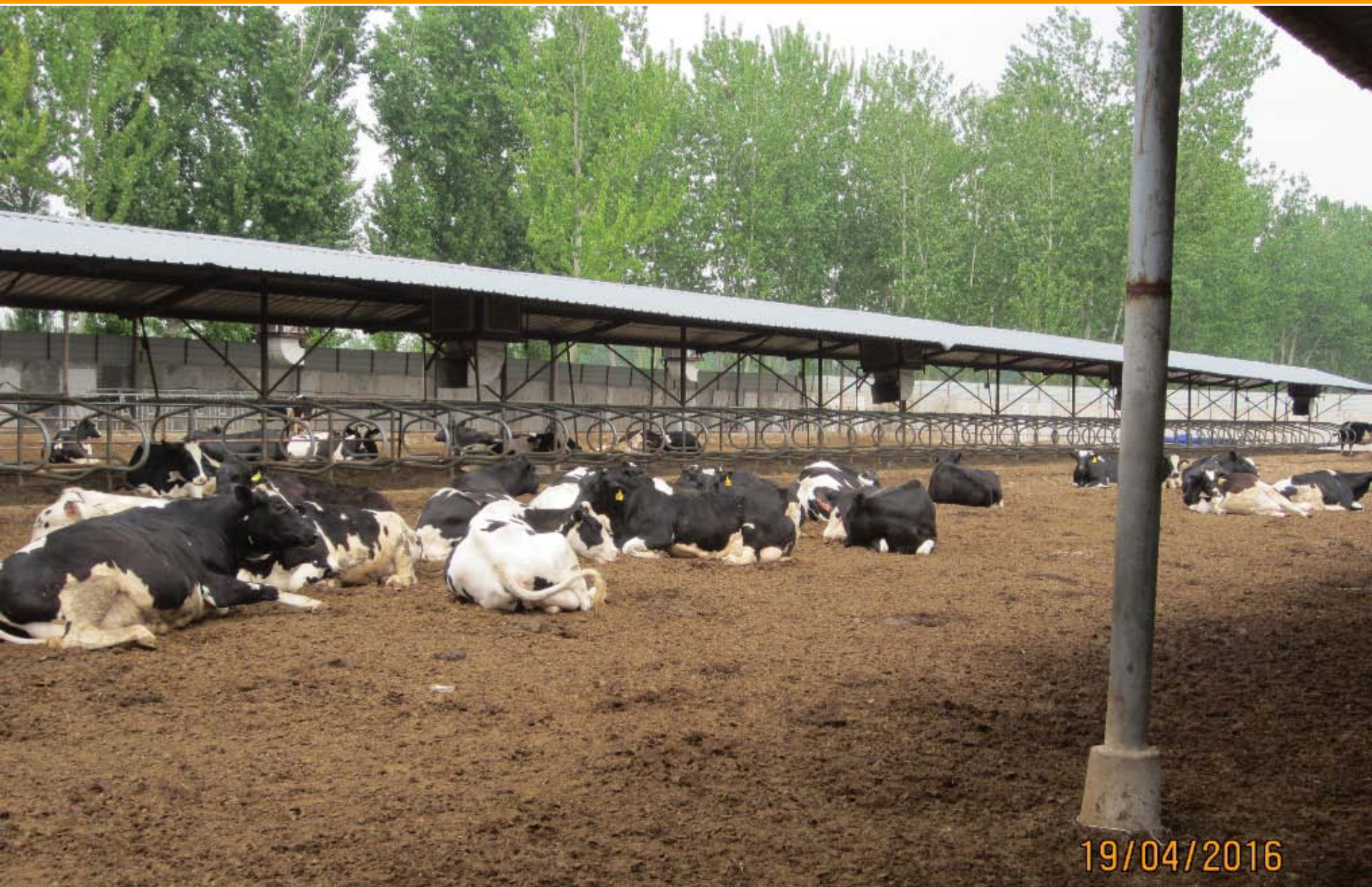


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# Family Farms



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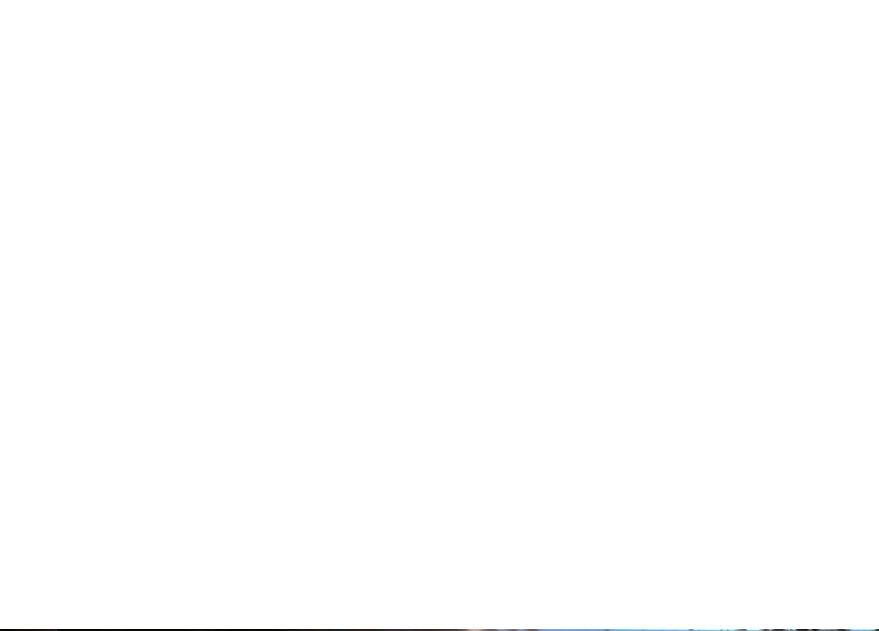
















# Co-operative Farms



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# Corporate Farms







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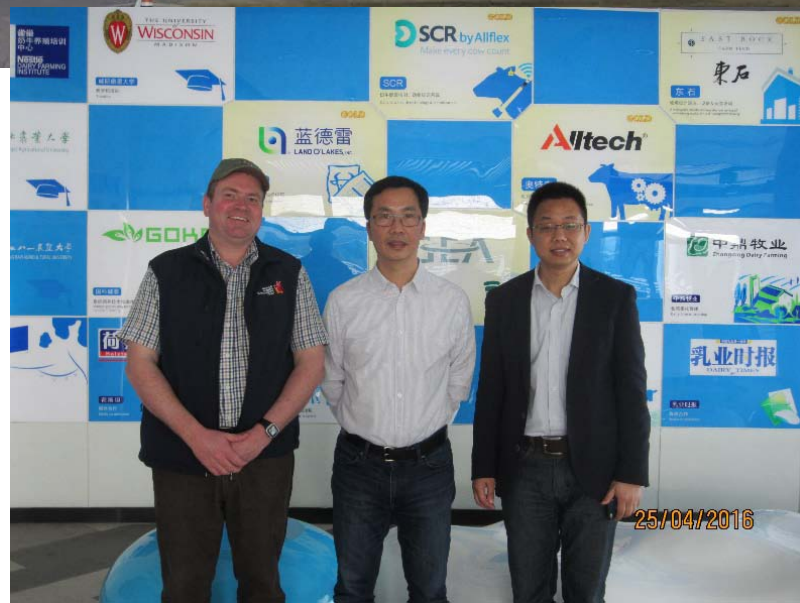
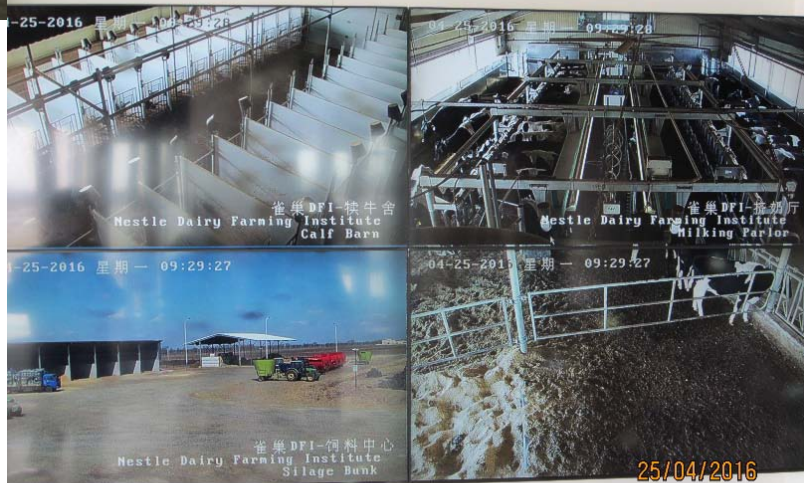








# Nestle Dairy Farming Institute





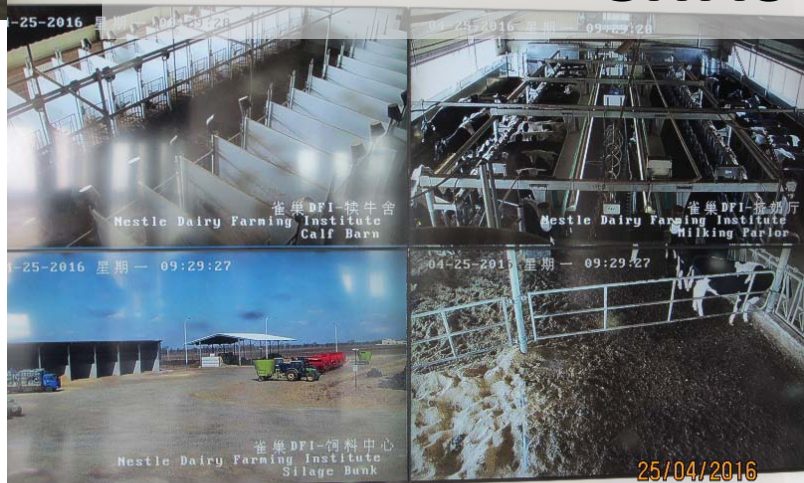


# Nestle Dairy Farming Institute



**“If you train them they might leave, if you don't train them they might stay”**

**Chris Padfield**





# Take Home Messages - China



- Small family farms rapidly disappearing in favour of large corporate type farms.
- Strong government influence.
- Feed quality & availability major issue.
- High cost of production, cannot compete with cheaper imports.
- Lack of land ownership & availability.
- Self sufficiency still a long way off!

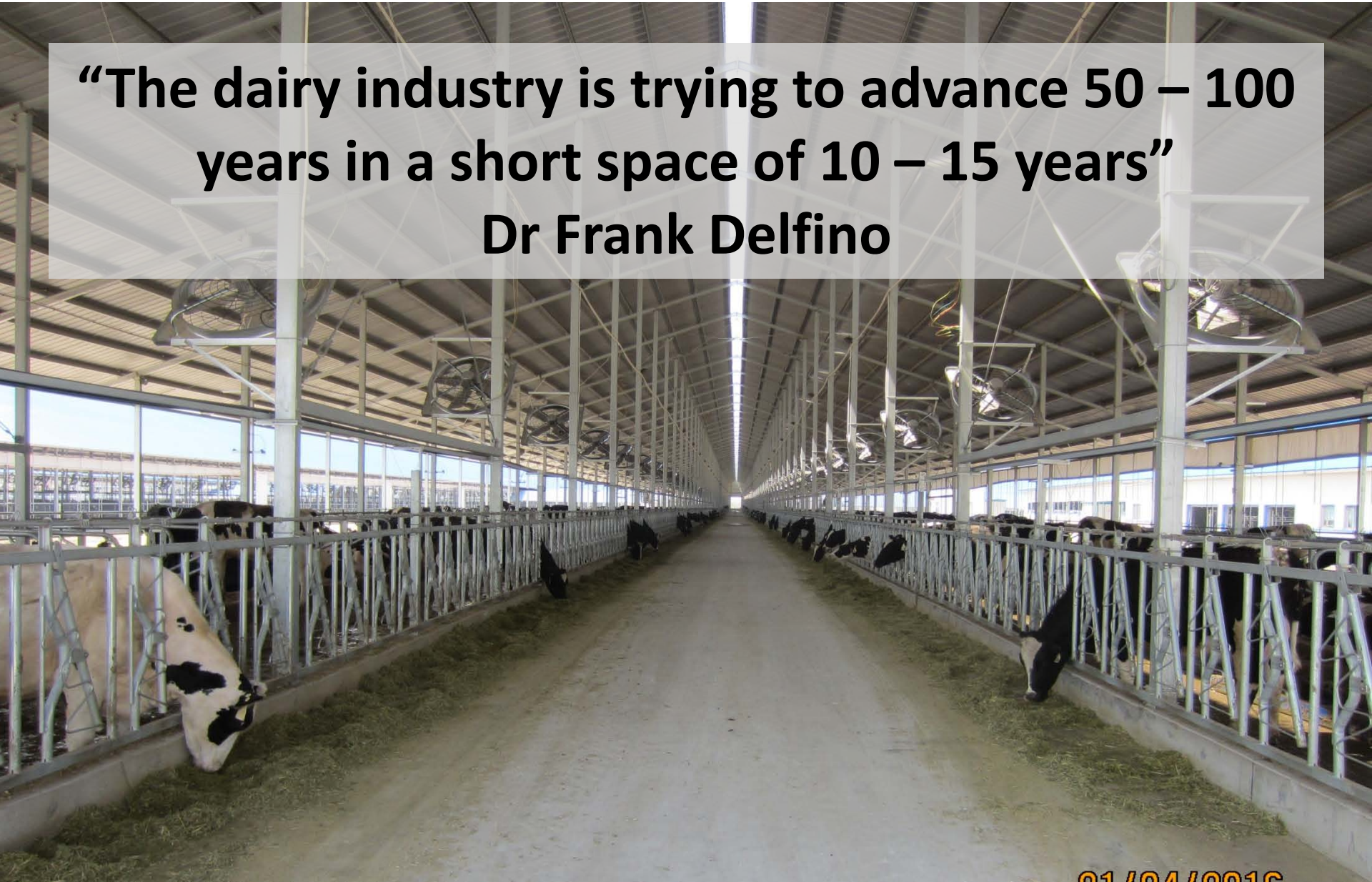




# Transition



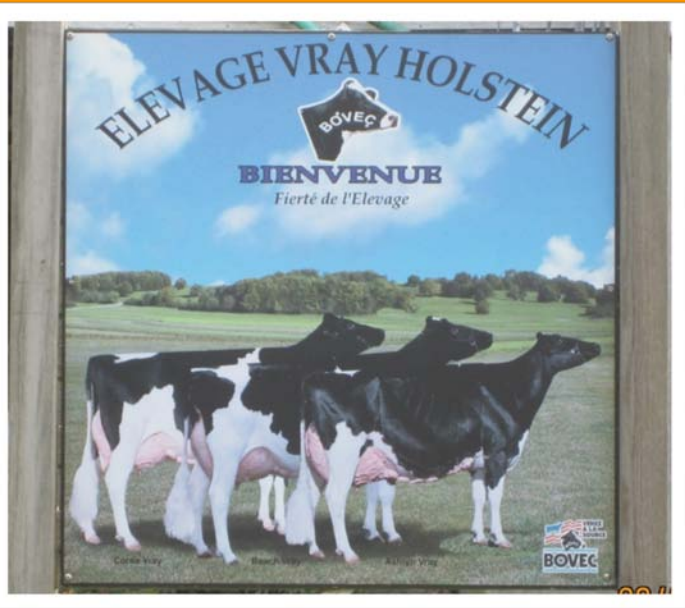
**“The dairy industry is trying to advance 50 – 100 years in a short space of 10 – 15 years”  
Dr Frank Delfino**







# France - Collaboration & Lifestyle



|                        |                |
|------------------------|----------------|
| Human population       | 66 million     |
| No. of dairy farms     | 64,000         |
| No. of dairy cows      | 3.7 million    |
| Average herd size      | 58 cows        |
| Average milk yield     | 8,309 kg       |
| Annual milk production | 24.6 bn litres |





# Take Home Messages - France



- Small family farms still play a key role in French agriculture.
- Farmers & neighbours collaborate to develop larger, more diverse farm businesses.
- Work life balance is crucial, even for dairy farmers.
- Milk production is still largely regulated by milk processors.
- Efforts being made to reduce milk price volatility.
- France has the potential to produce much more milk – will they exploit it?



# Protocols

**Молоко, не содержащее лекарств, – результат строгого соблюдения правил безопасного производства**

Производство молока, не содержащего лекарств, является результатом соблюдения строгих правил содержания коров, учета факторов производства молока и хранения молока в соответствии с рекомендациями Датской Ассоциации по Куплению Раствора Сыворотки / Датской Ассоциации по Молоку и Продуктам из Молока.

## 1. Маркировка коров



Маркировка ушей коров красными и синими метками является обязательным условием для идентификации коров. Метки должны быть прочными и легко читаемыми. Метки должны быть нанесены на оба уха коровы.

Наметки, что коровы имеют лекарства, должны быть нанесены на оба уха коровы. Метки должны быть нанесены на оба уха коровы.

В рубрике «Лекарства» в системе маркировки коровы должны быть отмечены. Это позволяет отслеживать использование лекарств коровами.

**Не забывайте информировать ветеринара и инспектора коров, применяющих маркировку и их использование в маркировке**

## 2. Регистрация лечения



Ваша задача – регистрировать лечение коров. Это включает в себя запись даты, времени, названия лекарства, дозы, способа применения и результата лечения. Регистрация лечения должна быть точной и полной.

Полное и правильное использование системы маркировки коров является обязательным условием для идентификации коров. Метки должны быть нанесены на оба уха коровы.

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**Несоблюдение правил приводит к тяжелым последствиям!**

## 3. Удерживание молока



При удерживании молока важно соблюдать правила гигиены. Руки должны быть чистыми, а молоко должно быть собрано в чистую емкость. Удержание молока должно быть быстрым и эффективным.

Ваша задача – удерживать молоко. Это включает в себя запись даты, времени, названия лекарства, дозы, способа применения и результата лечения. Регистрация лечения должна быть точной и полной.

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**Соблюдение правил приводит к тяжелым последствиям!**

**Sikker malkning – undgå medicinrester i mælken**

Medicinrester i mælk forebygges gennem gode rutiner og en plan om overblik, registrering og fremstilling af behandlende køer

## 1. Mærkning



Markering af ørerne for sikkerhed: Markering af ørerne på begge sider, så den altid er synlig. Markering af ørerne på begge sider, så den altid er synlig.

Se altid på ørerne på begge sider. Markering af ørerne på begge sider, så den altid er synlig. Markering af ørerne på begge sider, så den altid er synlig.

Med AMS, beskriv når køer er behandlet med medicin. Markering af ørerne på begge sider, så den altid er synlig.

**Gode dyrtages rutiner om køer, registrering, placering i stalden. Sammenhæng mellem rutiner og behandling**

## 2. Registrering



Det er vigtigt at have en god registrering af medicinrester i mælk. Dette inkluderer registrering af dato, tidspunkt, navn på lægemiddel, dosis og resultat. Registreringen skal være præcis og fuldstændig.

For at sikre, at alle køer er registreret, skal der være en god rutine for registrering. Dette inkluderer registrering af køer, der er behandlet med medicin, og registrering af køer, der ikke er behandlet.

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**Udvalgte rutiner om registrering og behandling**

## 3. Framalkning



Det er vigtigt at have en god rutine for framalkning. Dette inkluderer registrering af køer, der er behandlet med medicin, og registrering af køer, der ikke er behandlet. Framalkningen skal være præcis og fuldstændig.

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**28/06/2015**

Medicin og medicinrester i mælk. Det anbefales at have en god rutine for registrering og behandling af køer, der er behandlet med medicin.



## El Protocolo para Buena Cosecha del Calostro



1) Manija la vaca recién parida en el loquedor, tranquilo y con cuidado. Aplica el desinfectante en buena cantidad a los 4 cuartos de la vaca.



2) Despunta cada cuarto 10 veces, con fuerza, para asegurar que se quite todo el Orbesol. Examínala por indicaciones de mastitis.



3) Seca cada cuarto con una toalla limpia en un movimiento de torsión, vigorosamente. Termina por pellucar bien el punto de la teta para asegurar que la abertura al cuarto está completamente limpia.



4) Saca una muestra de calostro limpio en un jarra nuevo. Escribe el número de la vaca y la fecha por encima de ella y ponla en la refrigeradora para congelarse.



5) Conecta las mamilas a la vaca después de asegurar que la máquina se vincula con un bultito limpio. Observa el flujo de leche para que no sobre-ordene a la vaca.



6) Cubre completamente las 4 tetas con desinfectante.

21/09/2015

## 手工清洗部件



集乳器

奶杯内衬

奶管

接样瓶

挤奶机高压



奶杯组及清洗座

集乳器吸器

制冷罐出口阀门

搅拌叶



清洗池

集乳器

制冷罐死角

过滤器

抽奶管接头

奶泵箱、密封胶

## 挤奶设备的清洗程序

1.清洗频次（依据奶站挤奶频次可分为以下两种）：

每天挤两次奶的奶站适用于两碱一酸；每天挤奶三次的奶站适用于三碱一酸。具体操作如下：

两碱一酸：早晨挤奶结束后碱洗，晚上挤奶结束后进行CIP清洗。

三碱一酸：早晨、中午挤奶结束后碱洗，晚上挤奶结束后进行CIP清洗。早晨挤奶结束后的碱洗程序（即：执行清洗的前三步）：预冲洗、碱洗、后冲洗（中间冲洗）。

2.挤奶设备CIP清洗程序

（1）预冲洗：挤奶结束后立即用水温35℃-45℃的清水冲洗至水变清为止，不循环。

（2）碱洗：预冲洗结束后用70℃-85℃的热水，碱性清洗液的浓度为0.5%-0.8%，循环清洗8-15分钟，出水温度不低于40℃。清洗槽中的水量以槽中水量被吸干后（5-8）s，以清洗液从回水管流回为准。

（3）中间冲洗。用清水冲洗设备中残留的碱液，冲洗至水变清为止，用PH试纸检测为中性。

（4）酸洗。中间冲洗结束后用65℃-70℃的热水，酸性清洗液的浓度为0.5%-0.8%，循环清洗5-8分钟，出水温度不低于40℃。清洗槽中的水量以槽中水量被吸干后（5-8）s，以清洗液从回水管流回为准。

（5）后冲洗。用清水冲洗设备中残留的酸液，冲洗至水变清为止，出水口用PH试纸检测为中性。

25/04/2016



**INFLATIONS CHANGE:** every other Monday due: 7-20-2015

**Air Short tubes:** every 2 months due: 08-05-2015 (normally I match with left  
one is easier)

**Milk Hoses + Air Hoses:** every Six Months (Bobby is in charge)

**Employees Schedule:** 5pm-5am/5am-5pm : every 3 Months Jan-March

**Employee Supply** - Apron = every 3 months

- Gloves = every week

- Milking  
Sleeves = every 2 months

April-June

July-Sep

Oct-Dec

**Hospital Supplies** = Gammatel is in charge. Normally we get it Friday and Tuesday

**Milk Ticket** = 1 after each milking before Hospital and after Hospital.

**Chart recorder:** Needs to be Order from Toni and Christine

**Milk sheet for tank:** bring the last folio to Tom en she'll order them.  
Put a pile of 20 sheets in milk room and save the rest.

**Zip ties:** Order from Christine as need it.

**Vent in the** = Use steel glk, Mastic epoxy reinforced. But...

21/09/2015

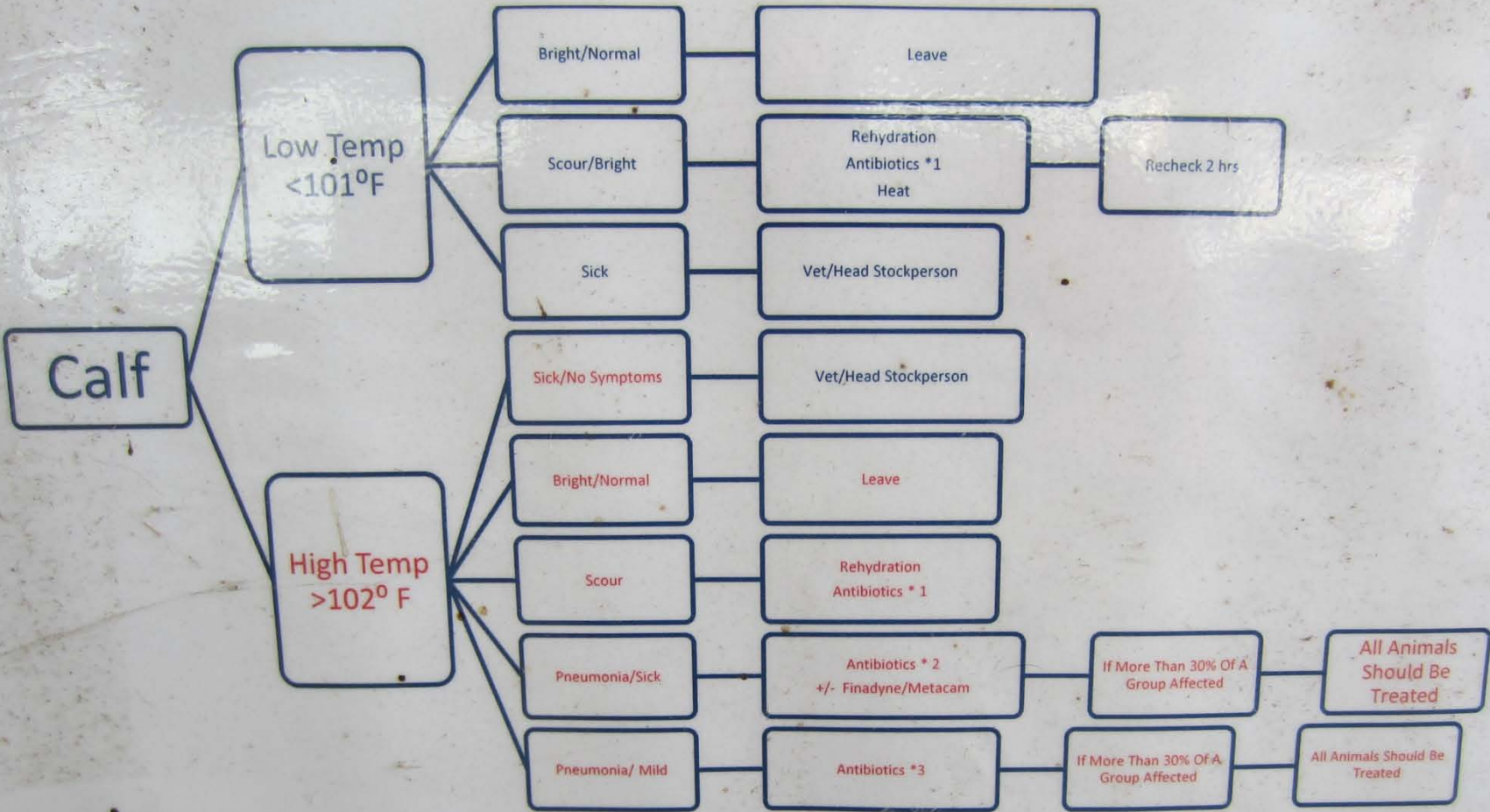




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16/09/2016





\*1 Antibiotics – Synulox injection or bolus

\*2 Antibiotics – Nuflor, Resflor, Draxxin, Zuprevo

\*3 Antibiotics- Alamycin, Engemycin, Hexasol etc

16/09/2016

If a new calf comes down  
with scours: \* put a blanket on her \*

#2 - Temp (if fever) give Excedol (card) (at Ralston)

#3 - Electrolytes!!

Our goal is to have every calf drink  
by itself - they need to be taught to  
drink - bottle feeding is not teaching it to  
drink!!!

|                    |            |
|--------------------|------------|
| up to 1 week - 40z | 9 wks 720z |
| 2 wks - 80z        |            |
| 3 wks - 160z       |            |
| 4 wks - 240z       |            |
| 5 wks - 320z       |            |
| 6 wks - 440z       |            |
| 7 wks - 560z       |            |
| 8 wks - 640z       |            |

GRAIN

Water: Do not give after 10 am + 10 pm

Electrolytes: Do not give after 12 am + 12 pm  
+ only fill tuber 1/2 full!!

This means calves SHOULD BE  
watered by 10:00 am + pm!!  
Does not mean drag your butt so  
you don't have to water them!

Does not  
apply to  
weaned  
calves..

Please do not dump milk in the  
Sink or down by sump pump - it runs  
outside in the ditch + makes Lee very  
unhappy! Put it back in tank on  
Kubota + dump down drain by posteurizer

6 electrolytes 11 am wks

22/09/2015





21/09/2015



# Take Home Messages

- Yes, there is a future for some family dairy farms, but not all.....
- Success will depend on....



- positive attitude
- business minded
- innovation
- improving efficiencies
- manageable expansion
- grasping opportunities

- Family farms have the resilience & work ethic not found on the larger corporate type farms.





# In Three Words!!

Family farms must –

- **Communicate**
- **Collaborate**
- **Innovate**



# Finally.....



22/09/2015





# Thank You

Read the full report at

<http://www.nuffieldscholar.org/our-scholars/trevor-alcorn/>



20/04/2016