

# 乳業是全球糧倉 Dairy farming as a group to feed the world

Far-East Asia Networking  
of Dairy Technology Conference

Sponsored by Taiwan Livestock Research Institute

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Tainan Taiwan



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## Objectives and Challenges-Dairy 乳業目標與挑戰

- ▶ Effectively produce dairy protein and nutrients to feed an expanding human population
- ▶ 有效地生產乳蛋白和營養物質來養活不斷擴大的人口
- ▶ Balance of resources - inputs and outputs
- ▶ 資源平衡- 投入和產出
- ▶ Listen to farmers and cows (and goats)
- ▶ 傾聽農民和牛 (和山羊)
- ▶ Synergies and collaboration are keys
- ▶ 協同和合作是關鍵

## Charles Darwin達爾文

It is not the strongest of the  
species that survive, nor the most  
intelligent, but the ones most  
responsive to change.

不是最強壯物種，也不是最聰明物  
種能存活，而是那些最能應對變化  
者。



## Change and Innovation 改變與創新

- ▶ Our knowledge of Genomics is rapidly advancing 我們在基因組學方面知識正快速發展
- ▶ Genetic pace accelerating 遺傳步調加快
  - Ensure we get right balance of traits 確保選育性狀間得到正確平衡
- ▶ Data recording and sharing critical 數據記錄和共享關鍵
  - Harmonization of Definition and Recording 定義和記錄的一致性
  - Who is going to pay for new Phenotypes (Phenomics)? 誰去支付新的表型(表型質體學)?
- ▶ Exciting new opportunities 令人激動的新機會
  - Both for Farmers and Support industries 無論是對農民和相關支撐產業
  - Engagement needed with all dairy farmers and research 所有酪農和研究需要共同參與(Inter)national Collaboration needed! 需要(國際)國內合作!



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## Technology advances.....

People stay the same !

技術進步.....人們保持不變!

- ▶ Information overload? 資訊超載?
  - “We need tools and services to store/interpret and realize value from data to knowledge to decision making”
- ▶ 我們需要工具和服務來儲存/解釋和實現從數據到知識到決策的價值。



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“Data are a long term strategic asset and critical to decision making in dairy farming”

數據是一個長期的策略資產，對乳牛養殖的決策至關重要

Jay Mattison 2015  
and probably others



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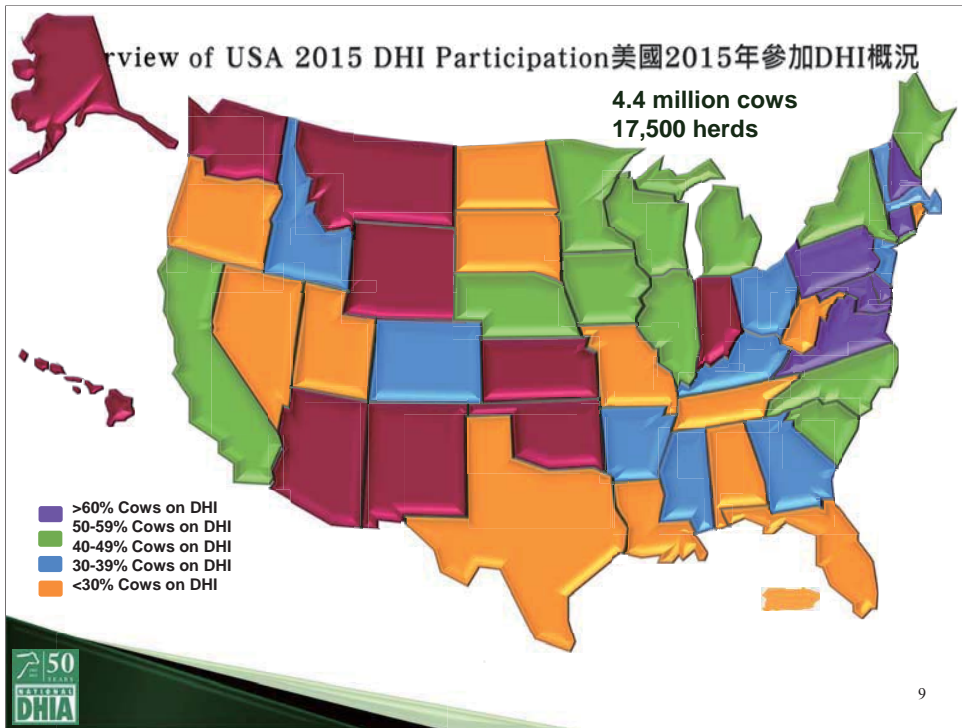
## Rule for New Technologies 新技術規則

“We tend to **overestimate** the **short term impact** of a technology and **underestimate** the **long term impact**”

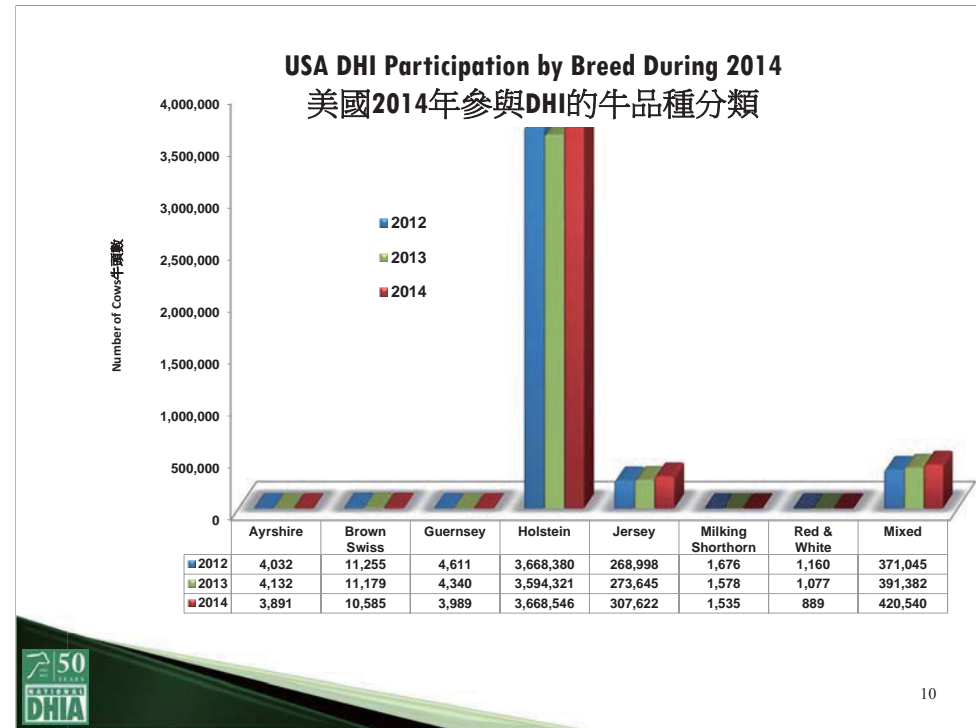
我們往往高估技術的短期影響而低估其長期影響。



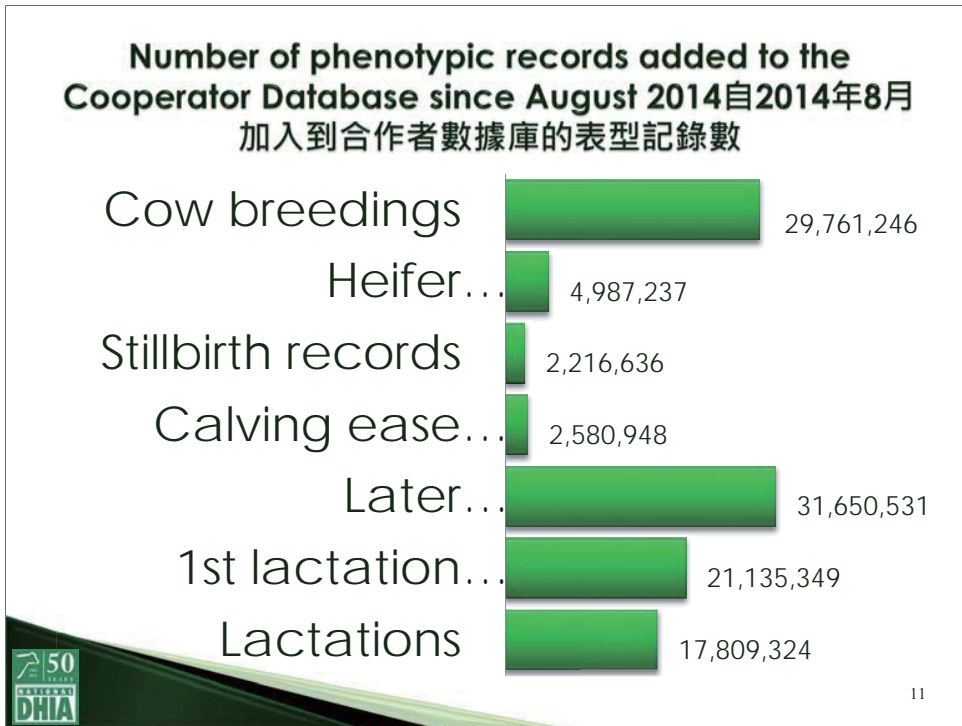
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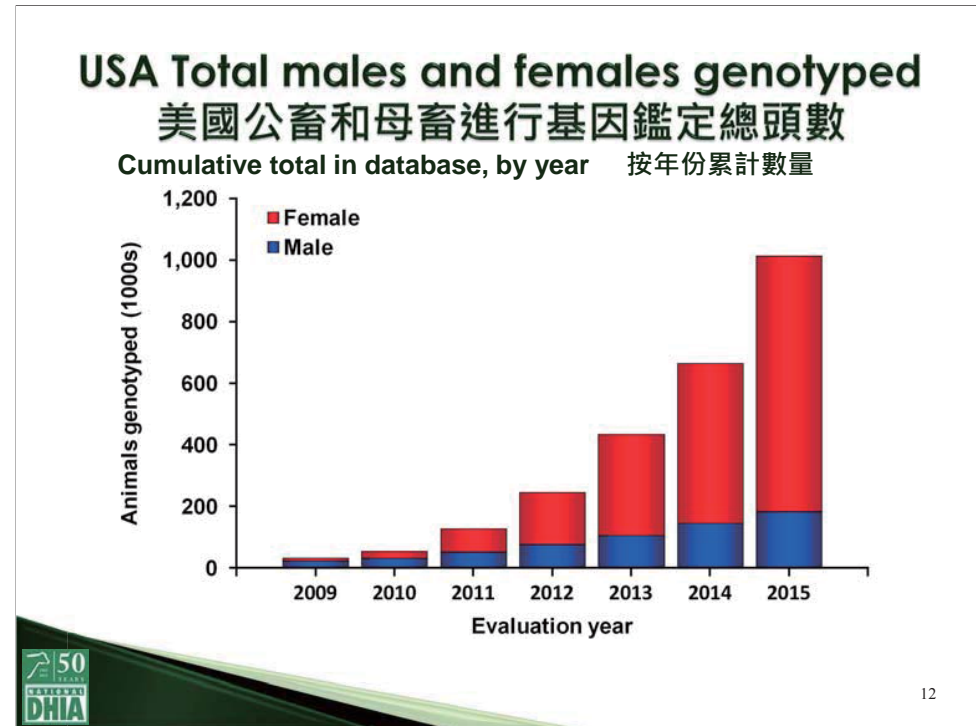
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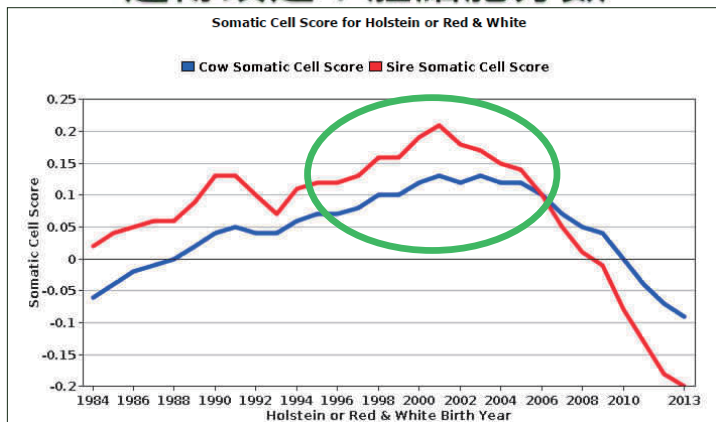
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## Genetic Improvement: Somatic Cell Score

### 遺傳改進：體細胞分數



[https://www.cdcb.us/eval/summary/trend.cfm?R\\_Menu=HO.s#StartBody](https://www.cdcb.us/eval/summary/trend.cfm?R_Menu=HO.s#StartBody)

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## Objectives and Challenges

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“Change is Comfortable  
改變是舒適的，既有的是不舒適的  
Being  
Being

Uncomfortable”

Decisions to be made 要作出的決定



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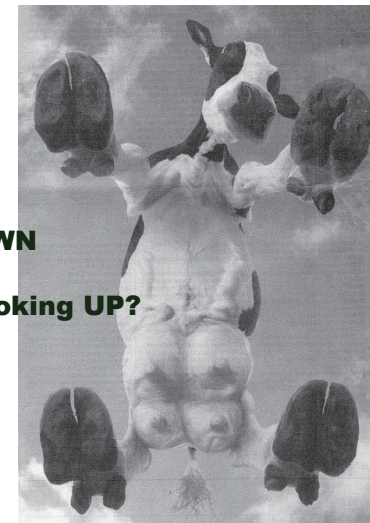
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## Tools for the Future 未來的工具

### New Technology 新技術

- Adapt and Adopt as dairy farming has done 能適應及被採納如農場先前已做。
- New traits 新性狀
- Management, housing and milking systems 管理  
· 畜舍和擠奶系統
  - Robotic rotary parlors 機器人旋轉盤擠乳室
- Sensor technology 感測技術
  - Ruminant, activity monitors 反芻 · 活動量監測
- Goats for dairy production 山羊乳生產

## Points of View 觀點



Is the cow looking DOWN

or

Is the photographer looking UP?

是牛低頭或是攝影師仰視？

## Environment – Global Warming? 環境 - 全球暖化



Thank you 謝謝您

▶ **Bright future**

▶ 光明的未來

▶ Innovation driven 創新驅動

▶ Working for and with farmers

▶ 為農民工作及與農民一起工作

Thank you<sup>0</sup>

# Far East Asia Dairy Technology Networking Conference

Thanks to:感謝 :

Taiwan Livestock Research Institute  
畜產試驗所

Participating countries/organizations  
參與國家與機構

Dairy farmers and their cows 酪農與所  
飼養的牛 ( 山羊 ) (and goats)



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