

種豬場之生物安全策略

Biosecurity Strategy for Pig Breeding Farms

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綱要

Outline

- 優質豬肉生產平台- 獸醫診斷實驗室
- Platform for high safety pork production -
 Veterinary diagnostic laboratory
- 疾病管控之生物安全策略
- Biosecurity strategy on diseases control
- 臺灣動物健康監測實務介紹
- Practical implementations of animal health
 monitoring in Taiwan
- 結論
- Conclusions

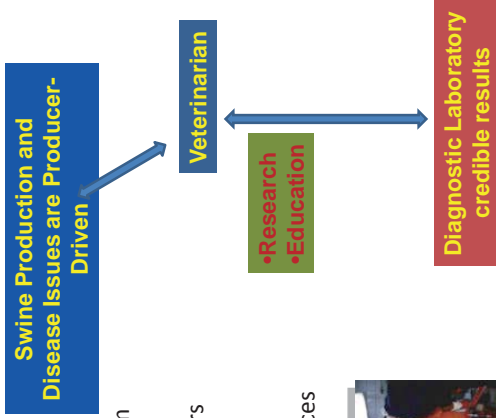
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診斷實驗室在做什麼 What our diagnostic laboratory does

- 準確地確定疾病是否存在 Accurately determine if disease is present
- 準確地確定是哪些疾病 Accurately determine which disease is present
- 通常包括實驗室檢驗 Usually involves laboratory tests
 - 觀察組織變化 (病灶) Observation of tissue changes (lesions)
 - 檢驗, 判讀及結果報告 Laboratory testing, test interpretation, and report results
- 好的實驗室報告具備之特性 Characteristics of good laboratory tests
 - 準確: 具特异性且敏感性, 但絕無“完美” Accurate: specific and sensitive, but never “perfect”
 - 快速、即時的結果 Rapid, timely results
 - 經濟 Economical
- 持續改進 Continuous improvement
 - 檢測精準度 Test accuracy
 - 檢測方法 Test methods
 - 送檢樣品類型 Sample types
 - 檢測策略 Testing strategies
 - 結果的應用 Application of results

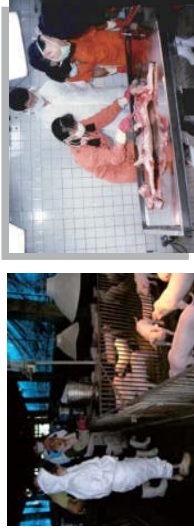
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家畜衛生試驗所動物疾病診斷中心
Animal Health Research Institute, Animal Disease Diagnostic Center



Advantages of this type of laboratory system

- Academic Environment
- Objective information for producers
- Applied Research and Teaching
- Accredited full service Lab
- Dedicated resource to diagnostic services



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精準、即時與實用的診斷服務

Values of Accurate, prompt, and Practical Diagnostic Services

- 個體/群體診斷 Individual animal / group level diagnosis
- 農場/系統層級Farm / System Level
 - 結合生產與疾病數據 Integrate disease data with production / 經濟效益數據 economic data
 - 影響經營管理之決定 Influence management decisions
 - 作為農場研究及田間試驗之依據 Support field trials and on-farm research



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Diagnostic Laboratory Tools

Must use the appropriate tool for the job (question) you have !!!

- Serology → Detects specific Antibodies
- Pathology → Lesions of disease
Histopathology → Effect and impact of disease
Compatible with cause identified
- Bacteriology → Pathogenic bacteria
- Virology → Pathogenic viruses
- Molecular Diagnostics → Nucleic acid of Agent
- Chemistry → Chemicals, nutrients, toxin

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Serology → Detects specific antibodies in blood

Population tool: Diagnosis of infection
Does not confirm disease

Many test "types": ELISA / IFAT / CF / AGID / SN

Serology Applications are very useful for

- Confirm a previous infection (or maternal antibody in young)
- Determine IF herd is infected
- Monitor WHEN infection occurs
- Determine HOW MANY have been infected
- Monitor vaccination COMPLIANCE
- Monitor status for elimination or eradication projects

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疾病管控之生物安全策略

Biosecurity strategy on diseases control

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Entering guard control



門禁管制是最基本的

Entrance guard control is the fundamental for a farm

牧場生物安全計畫是相對的 Biosecurity strategy on diseases control

Biosecurity is a “Relative” Term

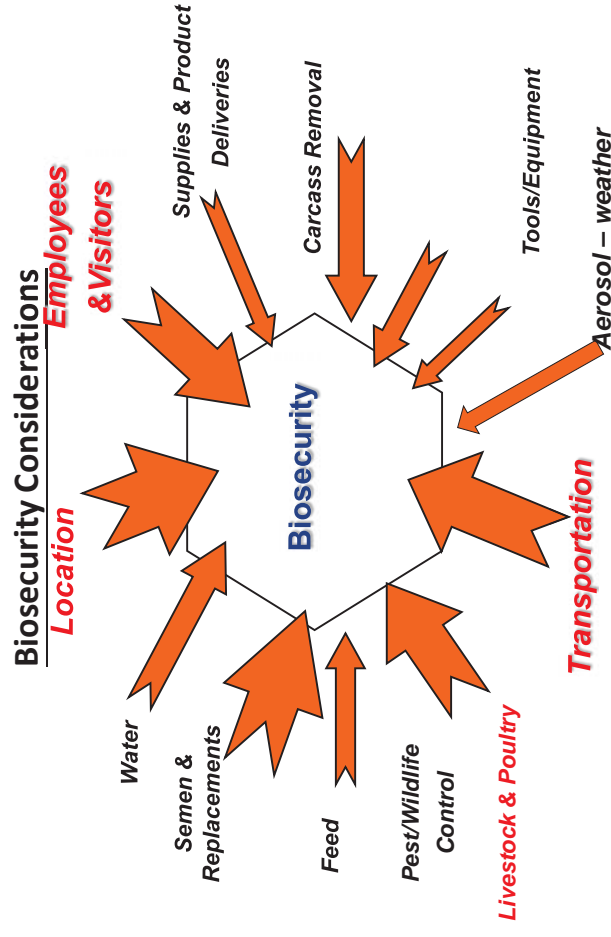


設備越先進，規模越大的牧場其風險越高

The more advanced the apparatus, the larger the farm, the higher the risk for the farm and the severity the damage once the disease invaded. Therefore, more complete of bio-security plan is necessary

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牧場生物安全計畫需考慮因子



牧場生物安全計畫需考慮因子

How to develop a biosecurity plan of pig farm

- Workers' moving flow
- Pigs' moving flow
- Equipment installation
- Sanitation flow

簡容單易且可持續執行

Easy to carry out

Avoid over requiring

避免交叉污染

Priority of considering factor

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膠鞋應徹底清洗乾淨

Cleanness of the boots is critical



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清洗是首要的消毒步驟

Biosecurity network: Washing first



Washing first

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Establish a biosecurity network Cleaning in the major part



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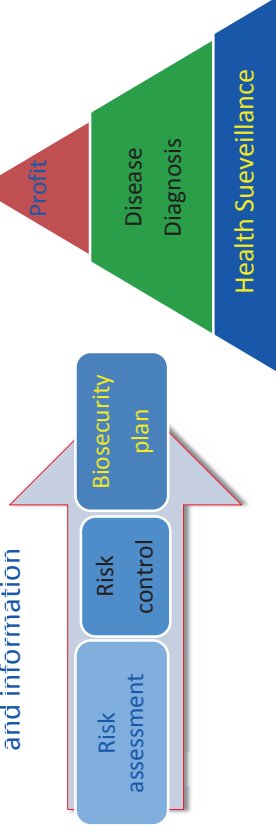
Rodents and birds are the high risk animals for biosecurity plan



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Differences between disease diagnosis and health surveillance

- Productive medicine and preventive medicine
- Developing of the new production system and responding to reemerging diseases and environment protection and animal protection
- Integration and application of scientific production and information



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Differences between disease diagnosis and health surveillance

Etiology of dead fetuses and abortion

Virus, bacteria, protozoa

Mycotoxin

Others

Clinical skin hemolytic lesion and acute septimia

- Complication of CSF and Salmonella
- Complication of PCVAD, PRRS and Salmonella
- PDNS
- Acute infection of *S. choleraesuis*
- Acute bacterial septimia

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Changes of pig disease

- Used to be bacterial and mycoplasmic infections
- Illness induced by immunosuppressive viruses
- ISVs is Swine Influenza, PRRS, PR, CSF, PCV2, etc.....

資料來源：www.antecint.co.uk/main/immunovi.htm



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豬場營運賺錢的根基 Profiting foundations

- 正確疫苗使用
- Attitude and concept towards vaccine use
- 選擇適當的實驗室及專業獸醫師
- Qualified lab and veterinarian
- 正確解讀診斷實驗室之報告
- Correctly interpret the diagnosis record
- 擬訂適切的牧場生物安全計畫
- Appropriate biosecurity plan

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牧場是否賺錢之關鍵因素

Determination factors of profiting for a farm

- 經營者之態度及概念
Attitude and concept of producer
- 採集正確樣本及檢測項目
Object of sampling and examination
- 正確檢測及判讀
Interpretation for the test report
- 成本會計之概念
Concept of cost accounting
- 牧場風險分析及管理
Risk assesement for a farm

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豬場疾病監控之新作為 New actions for disease surveillance in a pig farm

- 每日記錄之習慣
To develop recording habit
- 建立淘汰或死亡豬隻之記錄月報表
To develop monthly report for culled and dead pigs
- 建立死亡豬隻病例記錄
To develop necropsy record
- 建立檢測報表資料庫
To develop a data base for examination reports
- 建立用藥及疫苗注射記錄
To develop medication and vaccination records
- 建立健康豬群血清抗體免疫基礎線
To establish the antibody baseline for healthy herd

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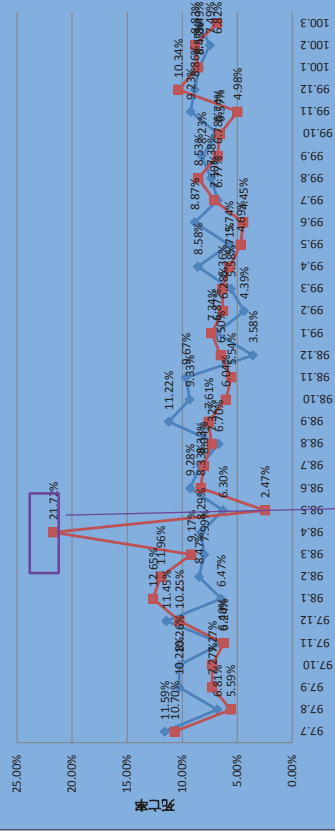
Successful cases introducing and experience sharing

- 應用豬隻生產醫學改善豬隻生產系統及減少疾病發生
- To improve the pig production system- swine production medicine
- 修正牧場經營者思考模式
- To revise the thinking model
- 修正飼養動線及流程
- To revise the feeding and management processes
- 確實執行修正後之操作步驟
- Precisely follow the revised operation procedure
- 建立牧場中健康豬群之血清抗體基礎線
- Establish the antibody baseline for healthy herd

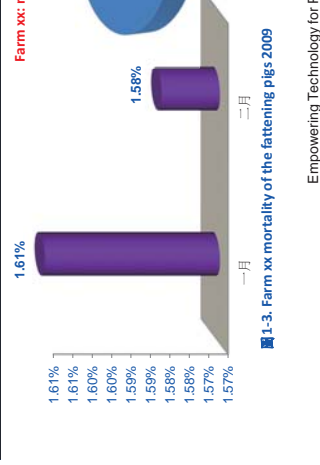
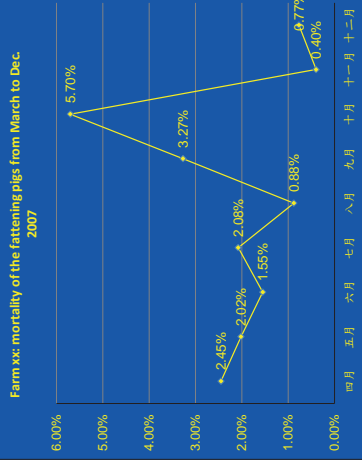
Questions and discussion

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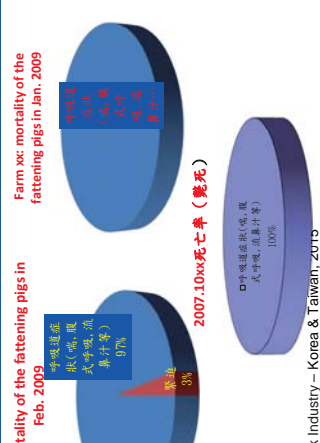
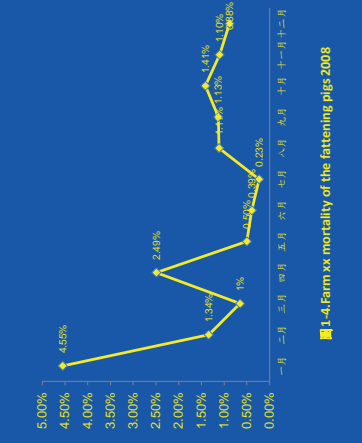
Piglet loss of farms AA and BB in the past years



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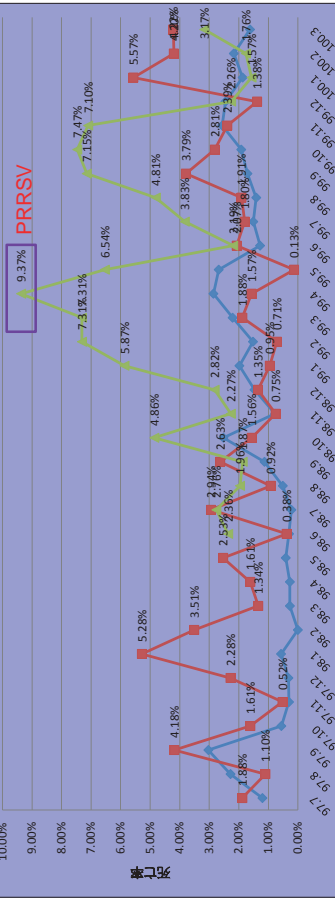


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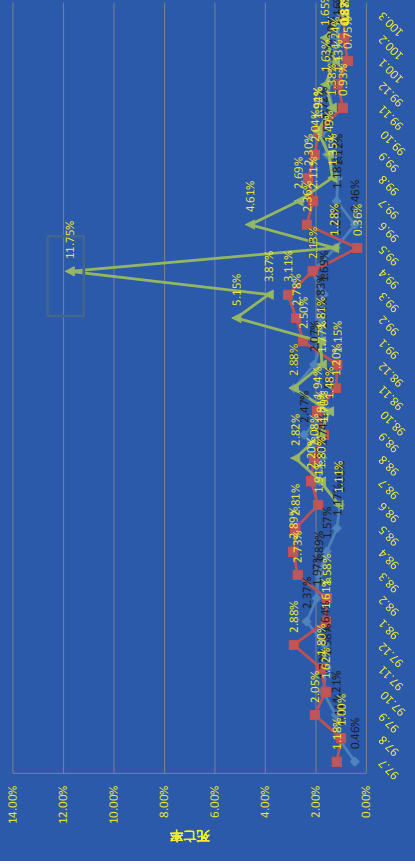
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Nursery pig loss of farms AA, BB and CC in the past years



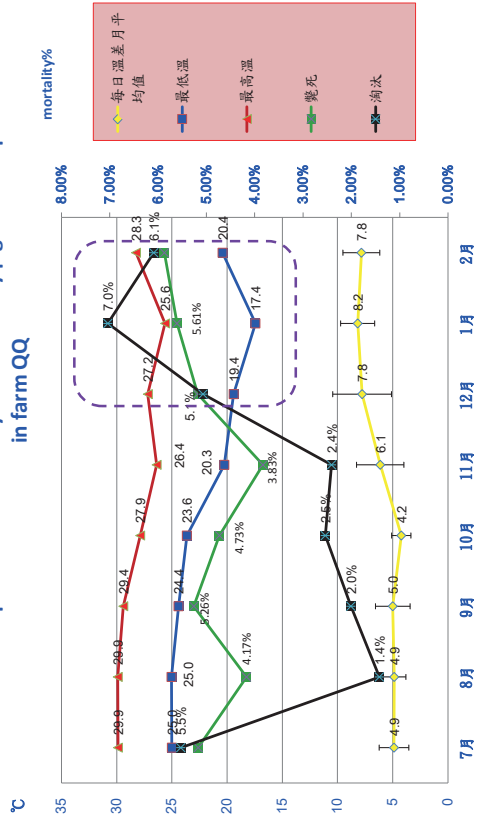
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Fattening pigs loss of farms AA, BB and CC in the past years



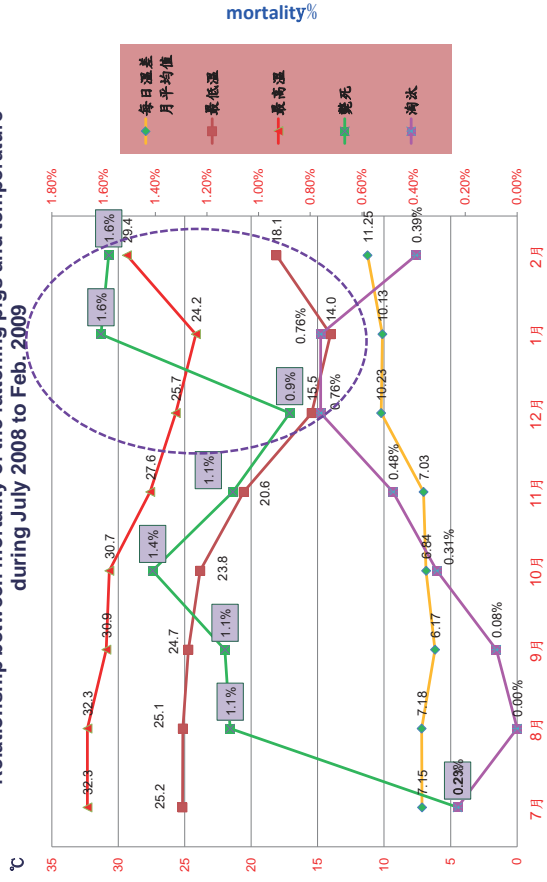
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Relationship between mortality of the nursery pigs and temperature in farm QQ



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Relationship between mortality of the fattening pigs and temperature during July 2008 to Feb. 2009



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Relationship among virus, ammonia, fungus and disease



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Relationship between ammonia and disease



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Reading the signals released from the pigs

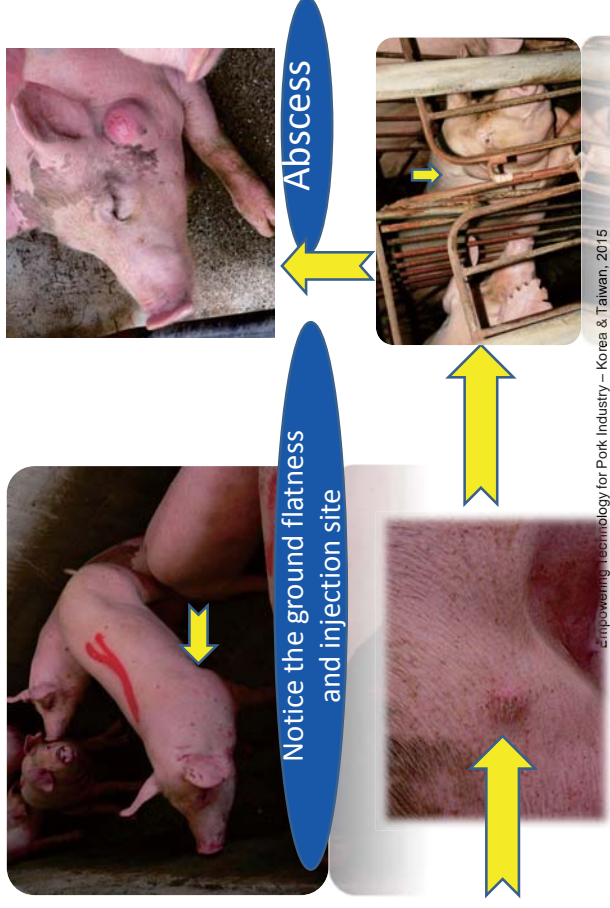


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A biosecurity net of a pig farm



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- Flatness and slope of the ground
- Any nutritious problems
- Any mycotoxic problems



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Warming, ventilation and disease



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結論-1 Conclusions

- 健康監測的技術平台，協助種豬場建立自場的生物安全防疫網及規劃完善的生物安全計畫

Technique platform of “Develop the biosecurity and biodefence for breeding stock” has been applied to establish biosecurity plans and standard operation procedures for the pig breeding farms.

- 建立早期預警制度，成功的降低疾病發生
- Reduce the incidence of disease through detail recording on the animal status of the herd and accomplishing early warning system by owners.
- 應用分子生物學技術快速篩檢重要病原，避免引入新種群或精液時將病原帶入
- Detection of serum antibodies and by polymerase chain reaction (PCR) technology for health surveillance on important pathogens.

結論-2 Conclusions

- 彙整病原監測及血清抗體檢測結果告知種豬場，協助其建立最佳疫苗免疫適期及生物安全計畫
- Analyzed data vaccination program and biosecurity plans been conducted in those farms were recommended.
- 近年輔導實施新式養豬生產醫學教育訓練，結果顯示可有效提升豬隻育成率達15%以上
- Working on swine production medicine training for swine producers. Results revealed that finishing rate has been effectively increased by 15% in pig farms.