

 **Never Stop Improving**

**Populating a PRRSV and PEDV (MHP) negative breeding herd
from a positive source**

从PRRSV、PEDV、MHP 阳性猪场获得阴性的种猪群

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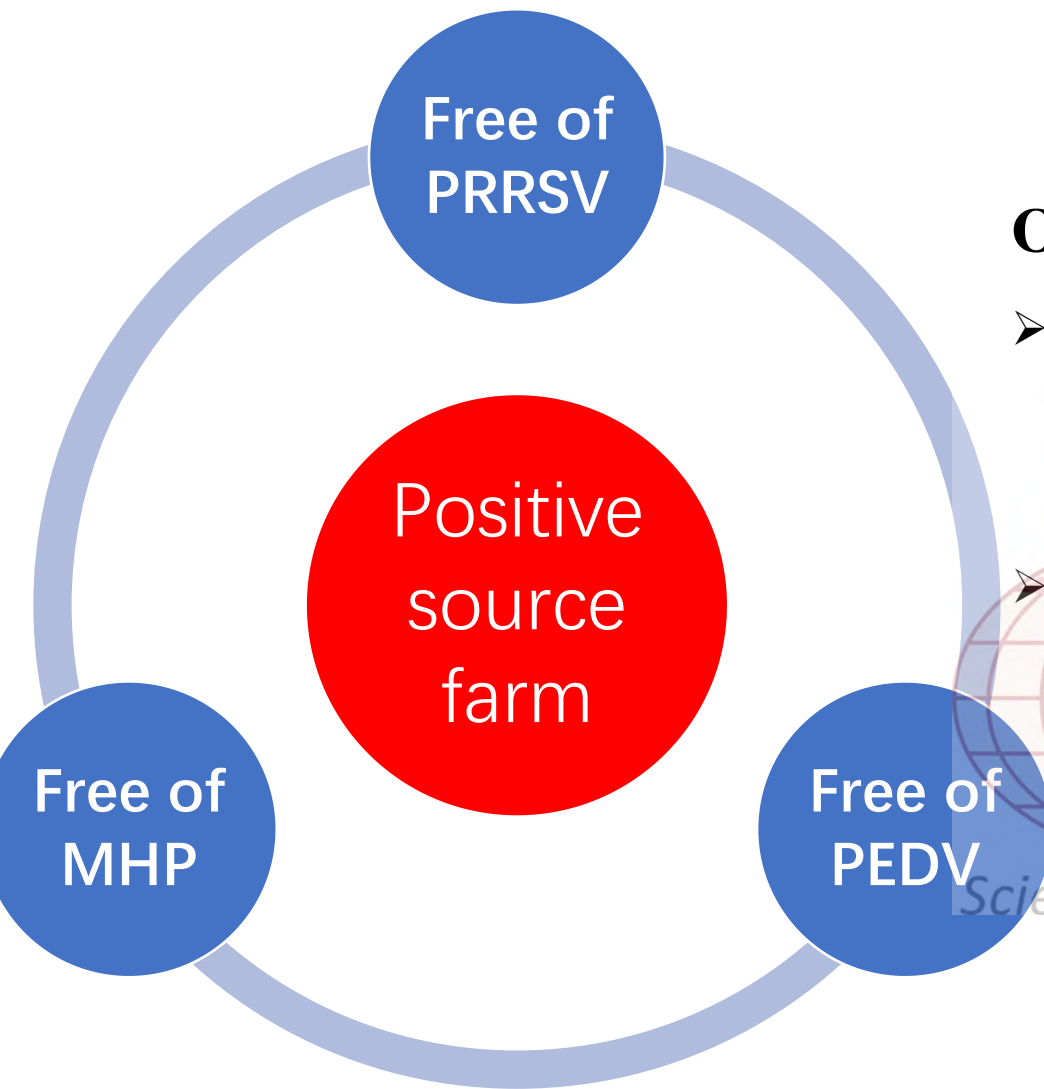
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PIC

Outline



- Introduction 介绍
- Background of positive source 阳性来源场的背景
- Materials and methods 材料与方法
- results 结果
- Conclusion and discussion 总结与讨论



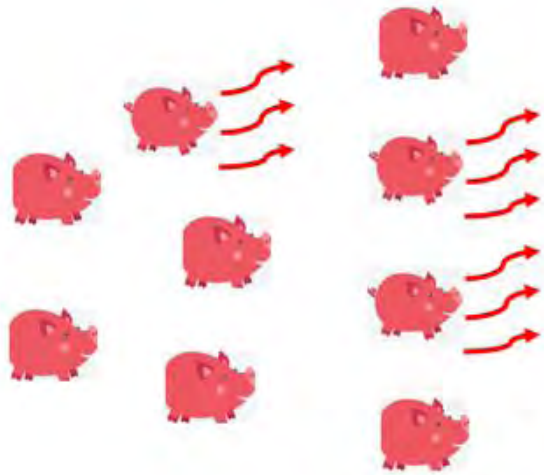
Objective 目标

- **Move about 2000 parity 2 and higher sows from positive farm to New farm.**

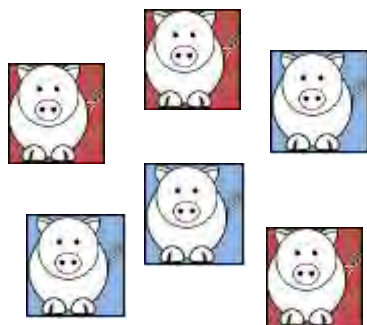
将大约2000头2胎及以上的母猪从阳性来源场移动至新场。

- **Eliminate PRRSV、MHP、PEDV at one time by sows and boars selection , transport biosecurity, surveillance plan before and after transport, the decline of environmental virus**

通过对母猪和公猪的挑选，运输生物安全的控制、运输前后的监测计划，环境中病毒的衰亡等措施，实现净化蓝耳、支原体、流行性腹泻的目标。

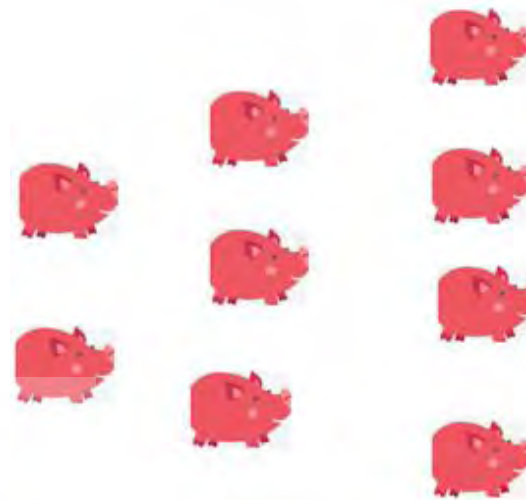


Source farm: sow herd shed virus
来源场，母猪群排泄病毒

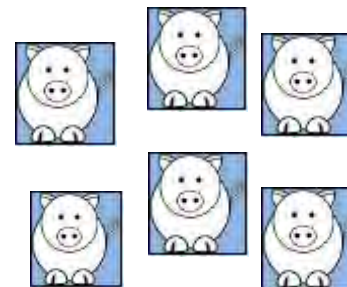


Wean positive piglets
断奶阳性仔猪

Generate

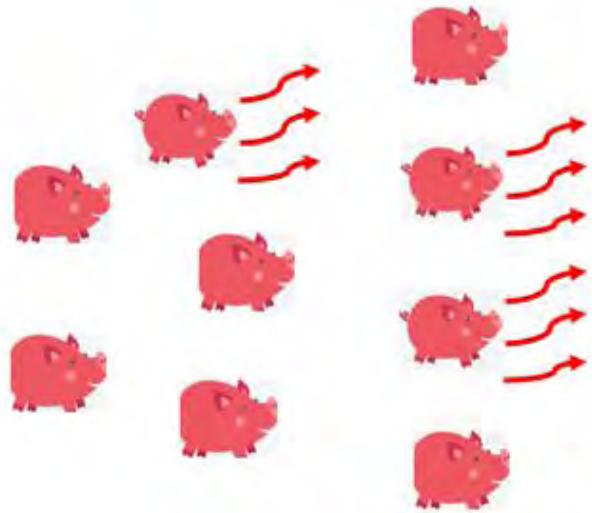


New farm: sow herd no shedding
新场，母猪群不排泄病毒



Wean negative piglets
断奶阴性仔猪





**After exposing the sow herd
the period of virus shedding from sow herd**

母猪群暴露病原以后，病原排泄时间



PEDV

PRRSV

MHP

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About 3-4 weeks

About 200 days

About 250 days

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- Flow production from farrowing to finisher (3000 sows herd)

一点式的种猪场(核心群3000头母猪)

- **Base on PIC 1000 location assessment and history of disease outbreaks, this farm is hard to keep high healthy status.**

根据PIC千点选址评估系统和发病历史对该场的评估结果，该猪场很难持续维持高健康。

- The distance between B&G area and Nursery/Finiser area is about 200 meters.

母猪区距离保育和育肥区大约有200米。

- PRRSV and MHP became positive in 2017

2017年爆发蓝耳和支原体，由阴性群转阳。

- Outbreak PEDV at the beginning of 2019

2019年初爆发流行性腹泻

- Production stable with PRRSV MLV vaccine and MHP killed vaccine.

生产稳定，猪群免疫蓝耳弱毒疫苗和支原体灭活疫苗

- After implement exposure、abortion plan and zoning management in B&G and farrowing area, no clinical sign of PED can be found in suckling piglets.

母猪区执行病毒暴露、流产、分区管理后，产房没有再出现PED的临床表现。

- Continuous circulating infection of PEDV、MHP、PRRSV in nursery and finisher area by antigen and antibody monitoring

通过抗原和抗体的监测，流行性腹泻病毒、支原体、蓝耳病毒在保育和育肥舍持续的循环感染。

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Before transport 运输前

➤ Sow selection 母猪的挑选

At least farrow piglets for one time.

至少分娩过1次仔猪

Over 40 days to farrowing after last sow arriving new farm.

到达新场后至少40天无母猪分娩

Take 16 days to transport 2000 sows from positive farm to new farm, actually over 56 days to farrowing should be selected.

将2000头母猪从阳性场转移到阴性场需要至少16天，实际上需要选择离分娩日期至少56天的母猪。

➤ Boar selection 公猪的选择

Old than 300 days

超过300日龄

➤ **MLV PRRSV vaccine 蓝耳疫苗免疫**

Stop the vaccine 6 weeks prior to the planned first shipment date (sows, boars and growing pigs).

运输前6周停止所有的蓝耳弱毒疫苗的免疫。

➤ **Gilts entry 后备猪的进入**

One month before movement, introduction of replacement gilts from G/F barns was stopped.

运输前一个月停止后备猪入群（母猪区）

➤ **Sows clean and disinfection 母猪的清洗和消毒**

Washing and disinfect the sows and boars which plan to be shipment during the transport's day.

运输当天对母猪和公猪进行清洗和消毒。

Surveillance plan 监测计划

- Start from 7 week before transport date

从转运日期前7周开始

- Every week collect 30 samples of weak piglets from 2 and high parity sows(one samples from each litter) for real-time PCR.

每周采集2胎及以上母猪所产的30份断奶弱猪血清检测蓝耳抗原（每窝一个样品）

- Sequence any virus positive sample for ORF-5

任何阳性结果都要进行蓝耳测序

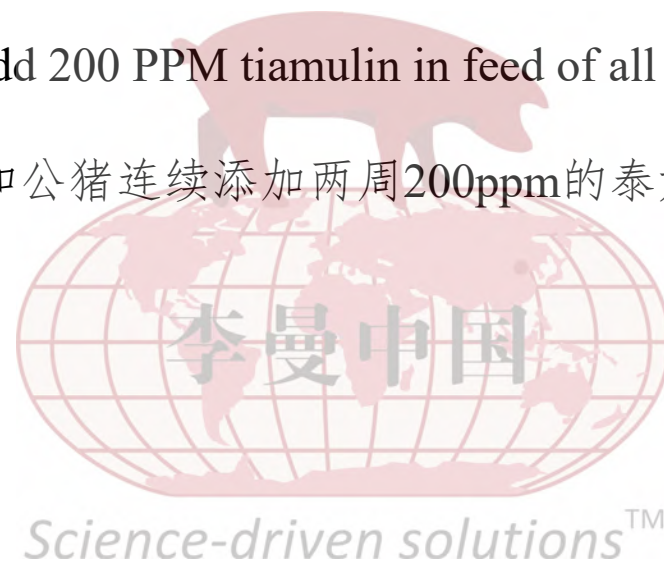
- Monitor the clinical signs of any fever, abortions or death in sows and herds.

检测有任何临床表现的母猪血液（发热、流产、死亡母猪）

Medication program 加药方案

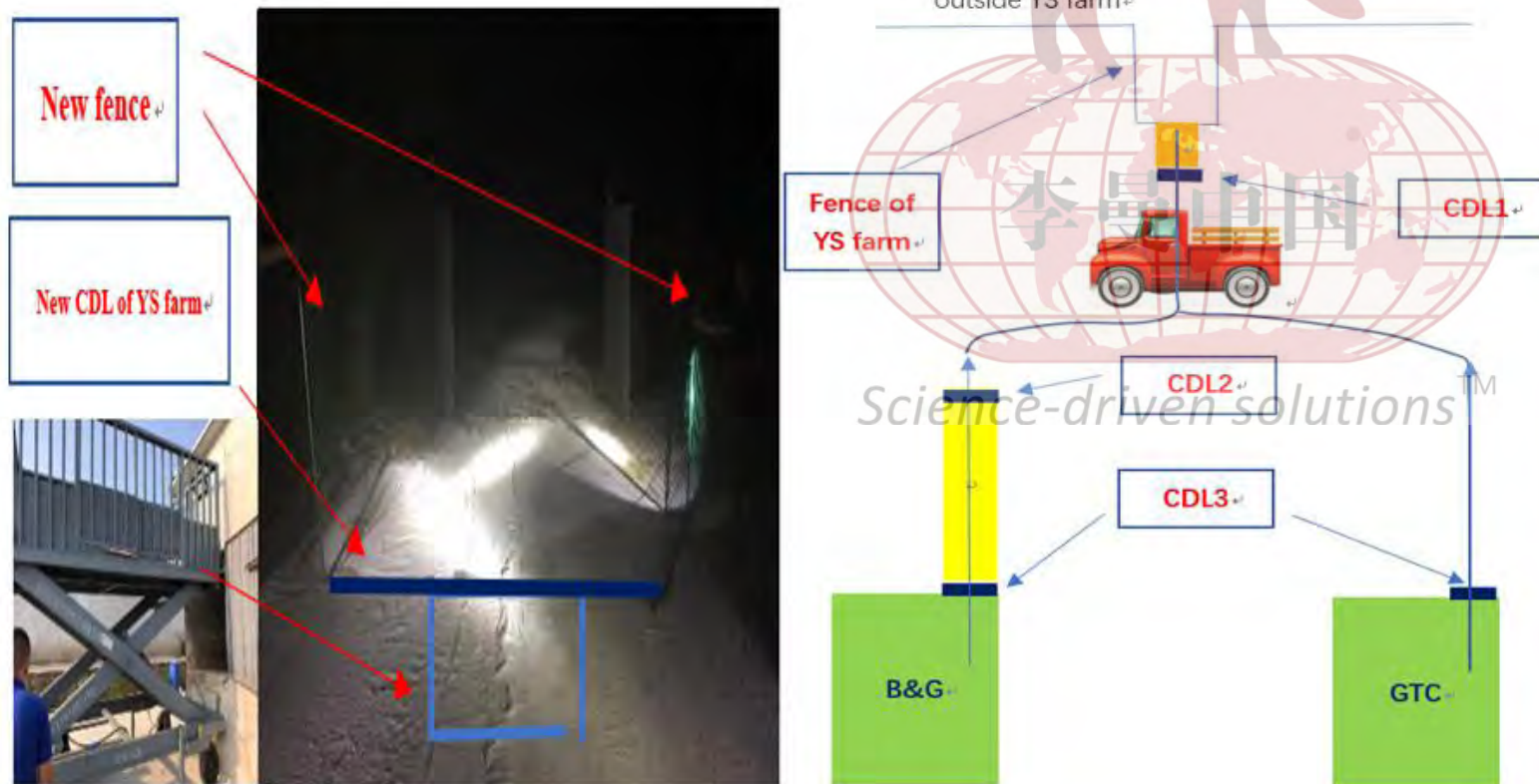
Two weeks before transport's day, start to add 200 PPM tiamulin in feed of all the sows and boars for two weeks.

运输前两周，开始在饲料中给所有母猪和公猪连续添加两周200ppm的泰妙菌素。



Transport biosecurity 运输生物安全

- Refine the clean and dirty line of positive farm in process of loading and unloading
重新定义装卸猪过程中净脏区。
- The driver are not allowed to get off the cab in the process of loading and unloading.
司机在装卸猪过程中不允许离开驾驶室。
- All the staffs take part in loading and unloading with any tool must come from production area.
所有参与装卸猪的人员和工具必须来自生产区。



Transport vehicles were tested for ASFV before admission. Any visible organic matter is not allowed to be found on the vehicle.

非洲猪瘟检测合格车辆方可使用。车上不允许发现任何可视有机物。

Baked at 56 °C for 70 minutes at a dedicated truck wash facility.

车辆在专用洗烘站进行56°C 70分钟烘干。

Breeding pigs are transported at night.

种猪车在晚上进行运输。

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After all the sows arriving 母猪到达以后

➤ Medication program 加药方案

After all the sows arriving , add 200 PPM tiamulin in feed of all the sows and boars for two weeks.

完成运输后，在饲料中给所有母猪和公猪连续添加两周200ppm的泰妙菌素。

➤ The operation procedure in farrowing room 产房的操作程序

The sows be washed and disinfected when enter farrowing room for one month.

母猪上床时对体表进行清洗和消毒，执行1个月。

Implement McREBEL 。

产房执行McREBEL 操作。



Surveillance plan 监测方案

Begin PCR monitoring serum and rectal samples when piglets reach 5 weeks age (two week after weaning). 60 serums (30 serums、 15 serums、 15 serums from 3 weeks、 4 weeks、 5 weeks old respective) and 30 rectal samples(15 swabs、 10 swabs、 5 swabs from 3 weeks、 4 weeks、 5 weeks old respective) per week for three weeks.

当仔猪到达5周龄后，每周采集60份血清和30份肛门拭子样品检测蓝耳与PEDV抗原，连续监测3周。

If all pigs are PCR negative then continue with normal monitoring procedures.

如果结果阴性则后续进行常规检测

If any sample is PRRSV PCR positive, do gene sequencing.

对任何蓝耳PCR检测阳性的样品进行测序。*Science-driven solutions™*

Collect the environmental samples before sow entering farrowing room (RT-PCR for PEDV and PRRSV).

母猪进入产房前对环境样本进行监测（蓝耳和PEDV抗原）

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➤ **The test results before transport** 运输前检测结果

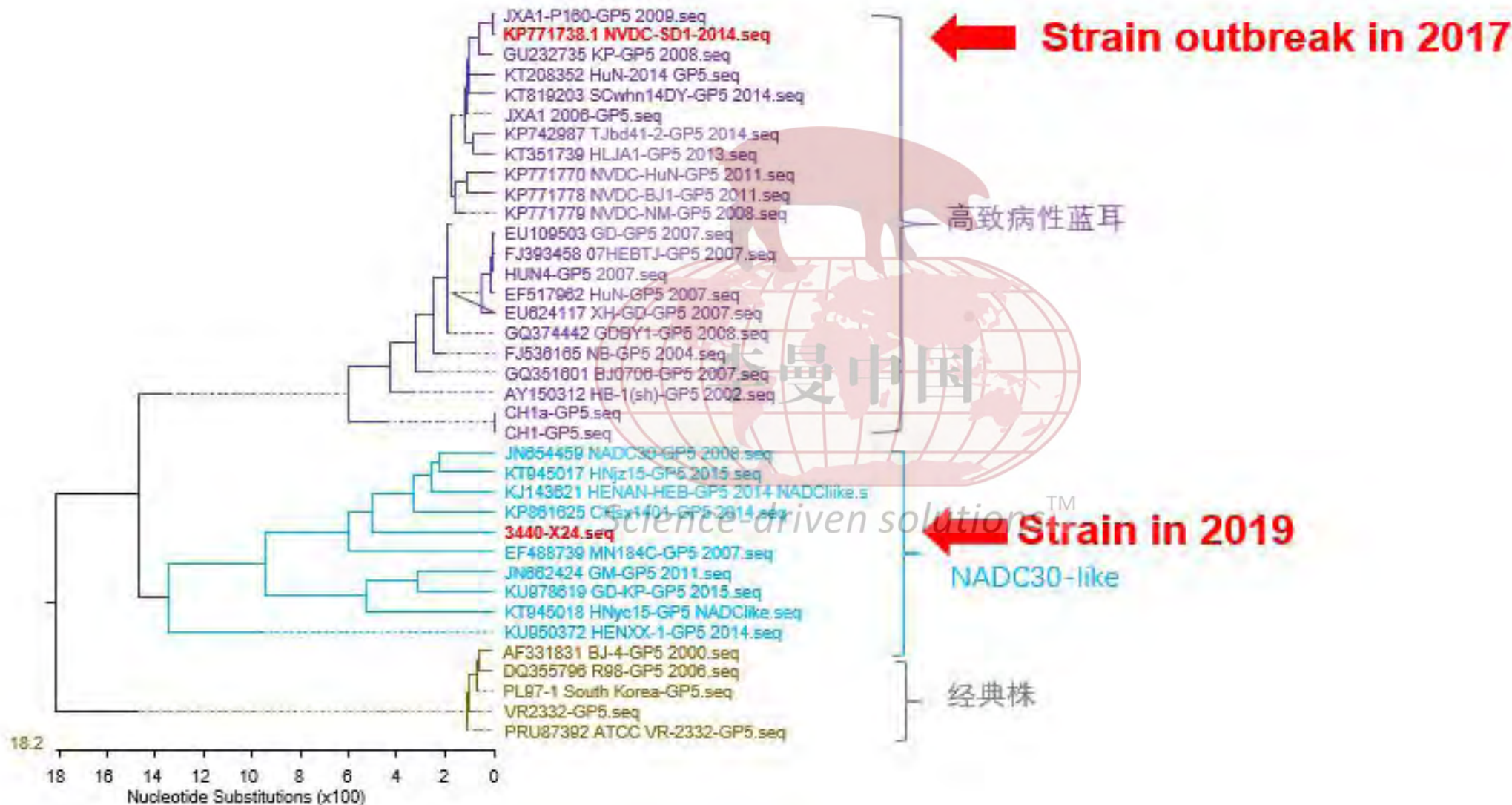
A PRRSV PCR positive sample from a weak wean piglet which born by high parity sows in positive farm. It is a new strain was identified compared with the strain identified in December 2017 in this farm. Only the new strain can be found in nursery piglets.

运输前曾有一份血清（来自高胎次母猪分娩的断奶弱猪）检出蓝耳抗原阳性，测序结果显示与2017爆发蓝耳毒株相比是一个新蓝耳毒株。在保育仔猪中只能发现这个新毒株。

➤ **The test results in new farm** 猪只在新场的检测结果

From September 2019 until now, all the test results showed that No PRRSV、PEDV、MHP shedding in new farm, RT-PCR PRRSV、PEDV are all negative, antibody of piglets which older than 5 weeks old are all free of MHP and PRRSV.

从2019年9月直到现在，所有结果均显示没有PRRSV、PEDV、MHP的病原从母猪群排泄给仔猪，所有PRRSV、PEDV的荧光定量结果均为阴性，超过5周的仔猪蓝耳、支原体抗体均为阴性。



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- 200 days before transport's days, no new PRRSV strain was introduced in source farm
运输前200天内，无新的蓝耳毒株引入猪群。
- Minimize the virus in the environment from positive farm to new farm.
最大程度减少将阳性场环境中的病毒带到新场。
- Minimize the new born piglets contact with the virus if few sows were still shedding or the virus in the environment.
若仍有少数母猪排毒或者环境中仍有少量病毒，最大程度减少新生仔猪接触病毒。
- 40 days without newborn piglets in new farm to create a bubble to inactive a small amount of virus in the environment at room temperature.
40天没有新生仔猪分娩是为了创造一个空泡时间，让环境中少量病毒在室温下失活。
- A good transport biosecurity protocols and perfect execution.
好的生物安全程序和完美的执行。

Comparison of economic value (own a positive farm and plan to create another negative breeding sows herd)

经济价值对比（如果拥有一个阳性猪场，计划建立另一个阴性种猪群）

<p>The method to create negative breeding herd 产生阴性种猪群的方法</p>	<p>Introduce negative replacement from a negative source 从阴性猪场引进阴性后备猪</p>	<p>Creating a negative breeding herd from a positive source 从阳性猪场获得阴性种猪群</p>
<p>The cost of introducing replacement 引入后备猪的成本</p>	<p>Market price gap between PRRSV negative replacement and PRRSV positive replacement (1000-2000 RMB per head, average 1500 RMB), Value gap=1500 RMB*2000 (Number of new sows herd) = 3 million RMB 蓝耳阴性和蓝耳阳性后备猪的市场价差(1000-2000 人民币/头, 平均1500 人民币/头) , 价值差=1500*2000 (新母猪群数量)= 3000000 元</p>	
<p>The value of producing negative replacement (differences in production performance are not considered) 生产阴性后备猪的价值 (不考虑生产性能的差距)</p>	<p>The number of weaning piglets are the same between two methods. But in first cycle, the second method can produce about 8000 more PRRSV negative piglets than first method. Only consider the market price gap between negative replacement and positive replacement (Selection rate of replacement is 70%). Value gap=2800* 1500= 4.2 million RMB 两种方法生产断奶仔猪总数是一致的。但是在第一个分娩周期，第二种方法比第一种方法多生产大约8000头蓝耳阴性断奶仔猪。只考虑阴性后备和阳性后备的市场价格的差异（留种率70%），价值差异=4200000元</p>	
<p>Values gap between two methods 两种方法的价值差距</p>	<p>Totally 7.2 million RMB in this case, that means the second method can earn extra 3600 RMB per sow than the first. If success in populating a PRRSV negative breeding herd from a positive source, compare with introducing negative replacement, every selected sow in new farm from positive source can earn extra 2.4*price gap(between PRRSV negative replacement and PRRSV positive replacement) . 这个案例价值差共720万元，相比第一种方法，第二种方法每头母猪能额外获得3600元。如果能成功的从蓝耳阳性群建立新的阴性群，每个被选上并移到新场的母猪可以额外赚取2.4*价差（蓝耳阳性后备和蓝耳阴性后备间的市场价格差值）</p>	

The inspiration of this case 该案例的启发

- Give us an additional choice to create a negative sows farm(no shedding), when you can't find a source of negative replacement or negative replacement is too expensive.
给我们提供一个额外的选择去建立一个阴性群（不排毒），当你无法找到阴性后备猪或者阴性后备猪过于昂贵的情况下。
- Location risk assessment should be the key factor to help you to decide the health level of new farm or the strategy when disease outbreak in pig farms. Elimination is not always a good choice for every farm.
选址风险评估应该是决定某新场健康等级的核心因素，当疾病在猪场爆发时，它也能帮助你去决定下一步的策略。并非对每个猪场而言净化都是一个好的选项。
- Economic value analysis of this case is not suitable for commercial farm.
该案例的经济性分析不适用于生产屠宰猪的商品母猪场。
- The higher the demand for negative replacement, the higher the economic value for this case.
市场对阴性后备猪需要越高时候，该案例的经济价值越高。
- Earn huge economic benefits if success in populating a PRRSV negative breeding herd from a positive source.
如果能成功从阳性群里产生阴性种猪群将获得巨大的经济收益。

致谢

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PIC supply chain





Thanks

谢谢

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