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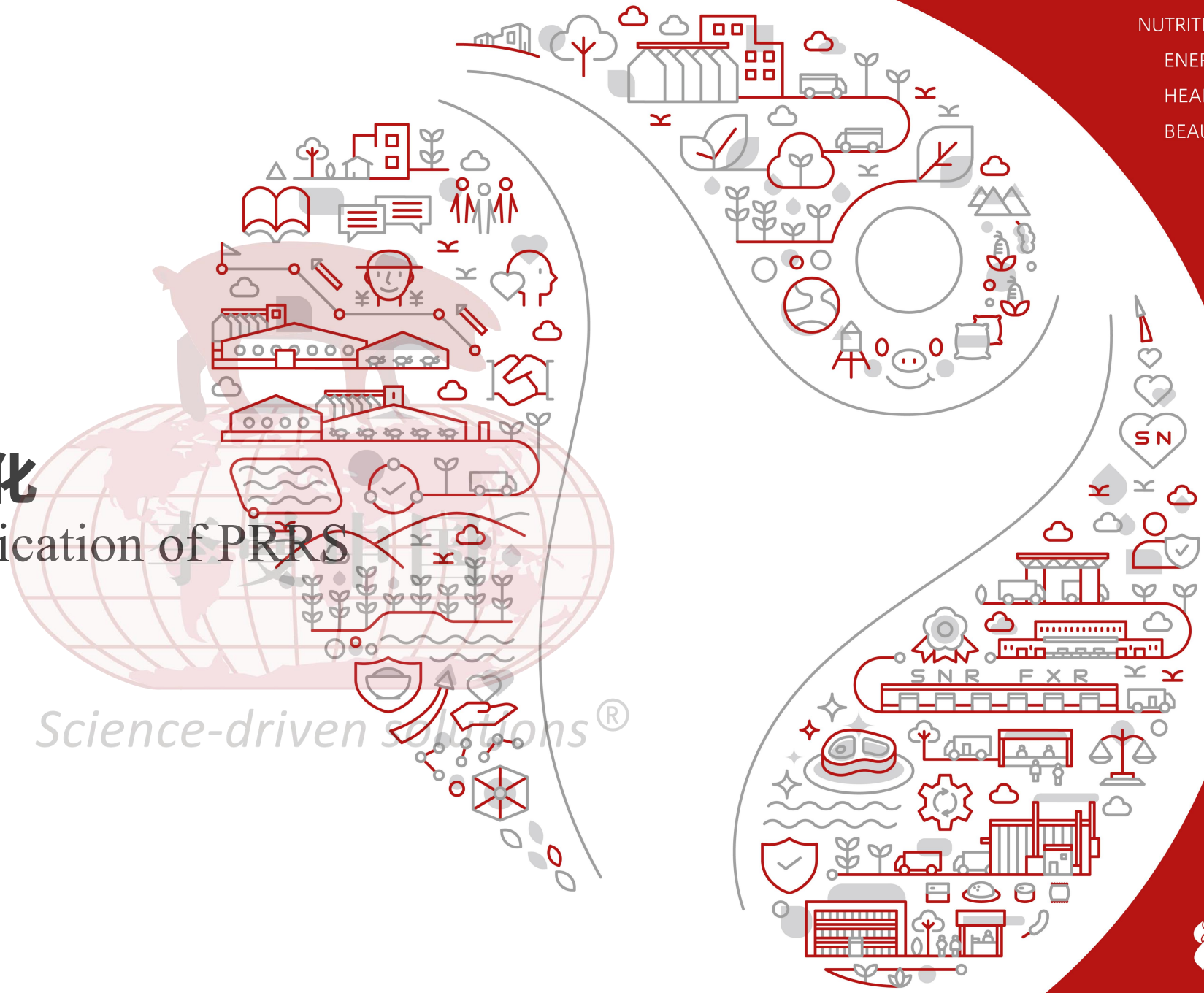
蓝耳病的监测和净化
Monitoring and eradication of PRRS



2025·10·18

李明·云南神农集团

养猪生产管理者面临蓝耳病相关的问题
Pig production managers face problems related to PRRS

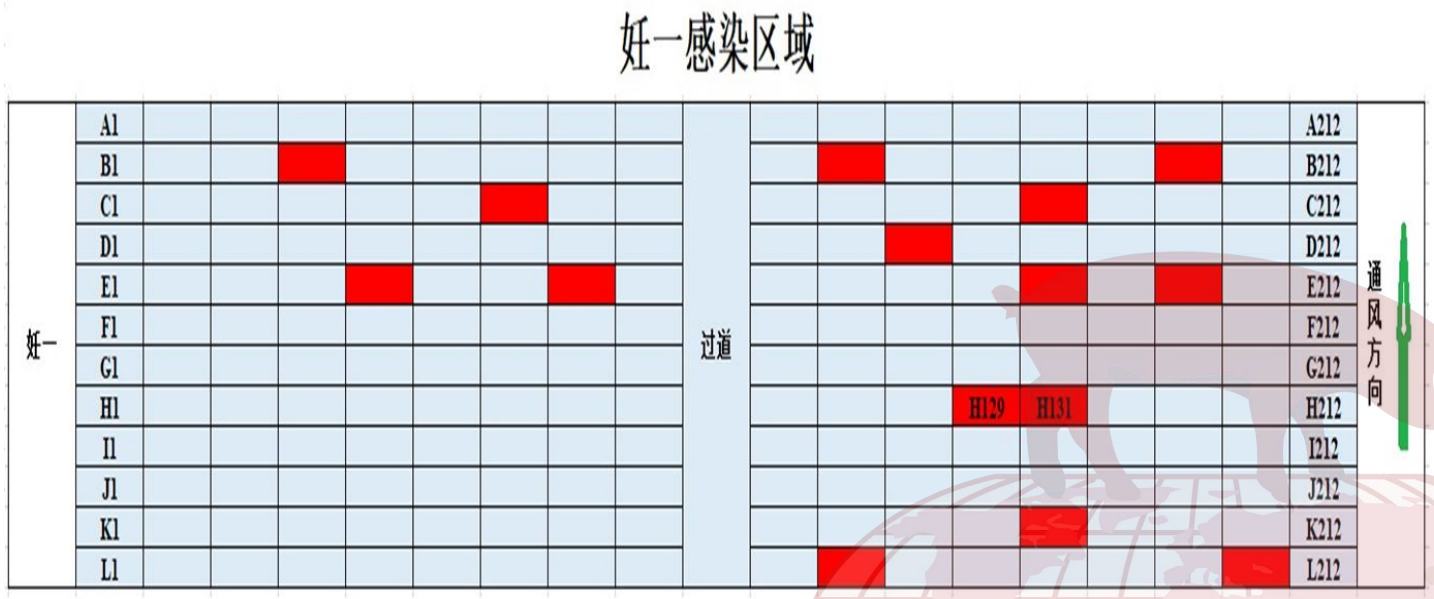
- 蓝耳双阴场如何监测？转阳怎么处理？如何建立不同的处理模型？哪种处理模型损失最低?
- How to monitor thePRRS double negative farm? How to deal with the positive conversion? How to establish different treatment models? Which treatment model has the lowest loss?
- 蓝耳阳性厂如何做到稳定？疫苗免疫？血清驯化？
- How can a farm with positive PRRS achieve stability? Through vaccination? Serum acclimation?
- 蓝耳病净化模式的选择？建群后备阶段感染净化？妊娠感染净化？如何降低净化对生产的损失?
- How to choose the eradication mode of PRRS? Infection eradication during the gilt stage? Pregnancy infection eradication? How to reduce the loss of production caused by eradication?

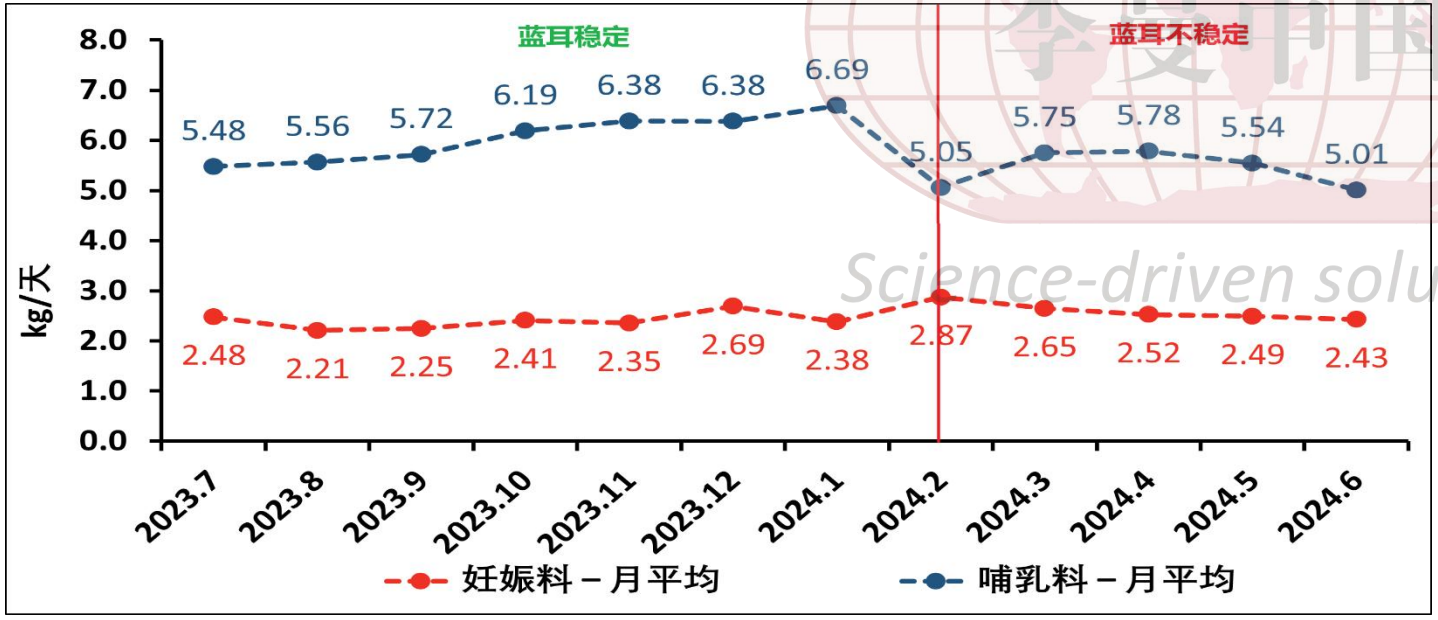
一、监测I. Monitoring

监测项目：Monitoring items:

1. 异常猪采样、采食量监测（如何早发现、早介入，降低传播速度）
1. Abnormal pig sampling and feed intake monitoring (how to detect and intervene early to reduce the spread rate)
2. 生产成绩（反映大群是否稳定，持续时长、疫情损失）
2. Production performance (reflecting the stability of the herd, duration, and losses due to disease)
3. 血清（检测个体样本病毒血症的标准）
3. Serum (standard for detecting viremia in individual samples)
4. 舌尖（跟血清的吻合度75%左右，舌尖阳性率＞血清）
4. Tongue tip (matching degree with serum is about 75%, and the positive rate of tongue tip is higher than that of serum)
5. 家庭口腔液（采集操作简单、跟技术液结果吻合度不高，适合大群评估）
5. Family oral fluid (simple collection operation, low consistency with process fluid results, suitable for large group assessment)
6. 脐带血（胎盘垂直传播）
6. Umbilical cord blood (vertical transmission through the placenta)
7. 技术液（血液、睾丸组织等，灵敏度高）
7. process fluid (blood, testicular tissue, etc., high sensitivity)
8. 哨兵猪（诱情公猪、高频率监测）
8. Sentinel pigs (inducing boars, high-frequency monitoring)
9. 仔猪免疫程序（免疫时间、免疫剂量）对下游育肥生产成绩影响（不稳定期、排毒量、生产指标、经济效益）
9. The impact of the immunization program for piglets (including immunization timing and dosage) on downstream fattening production outcomes, including unstable periods, shedding levels, production indicators, and economic benefits

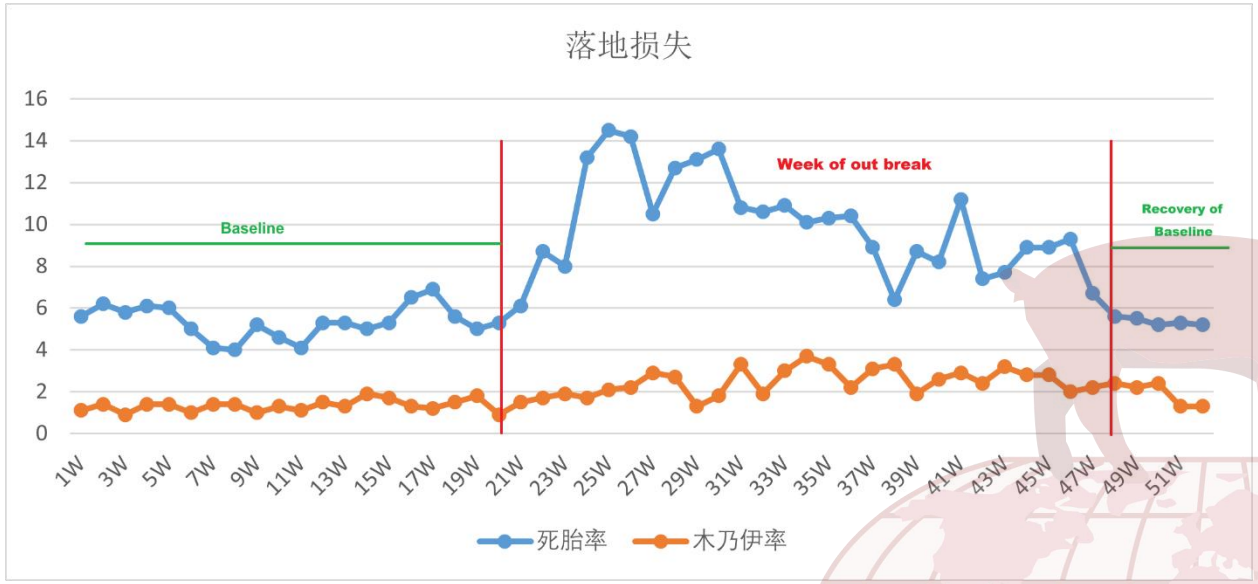
1、异常猪监测1. Abnormal pig monitoring

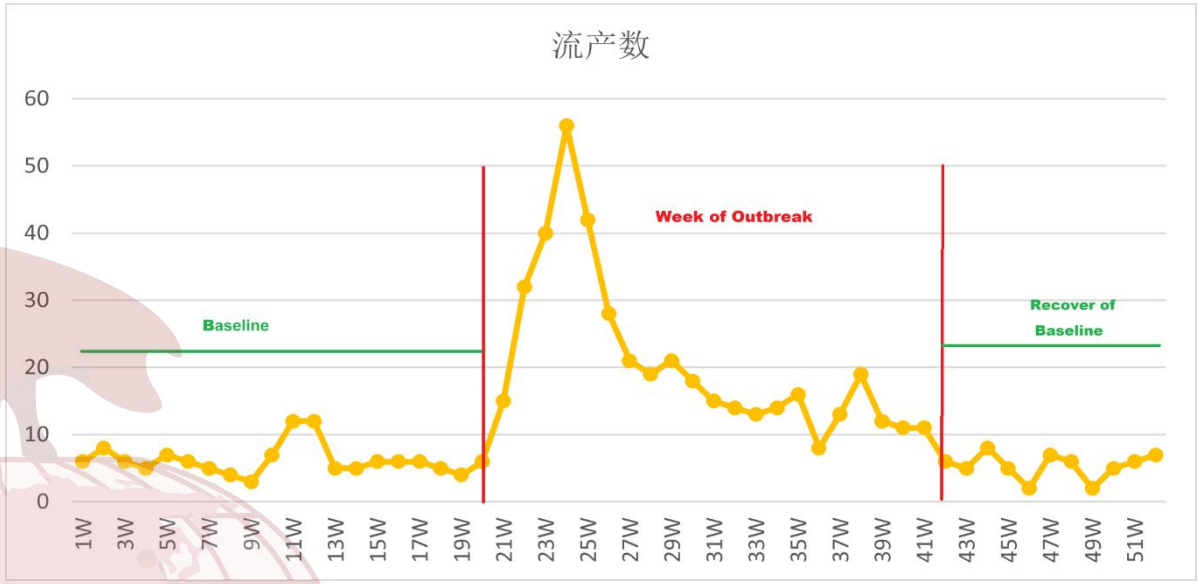


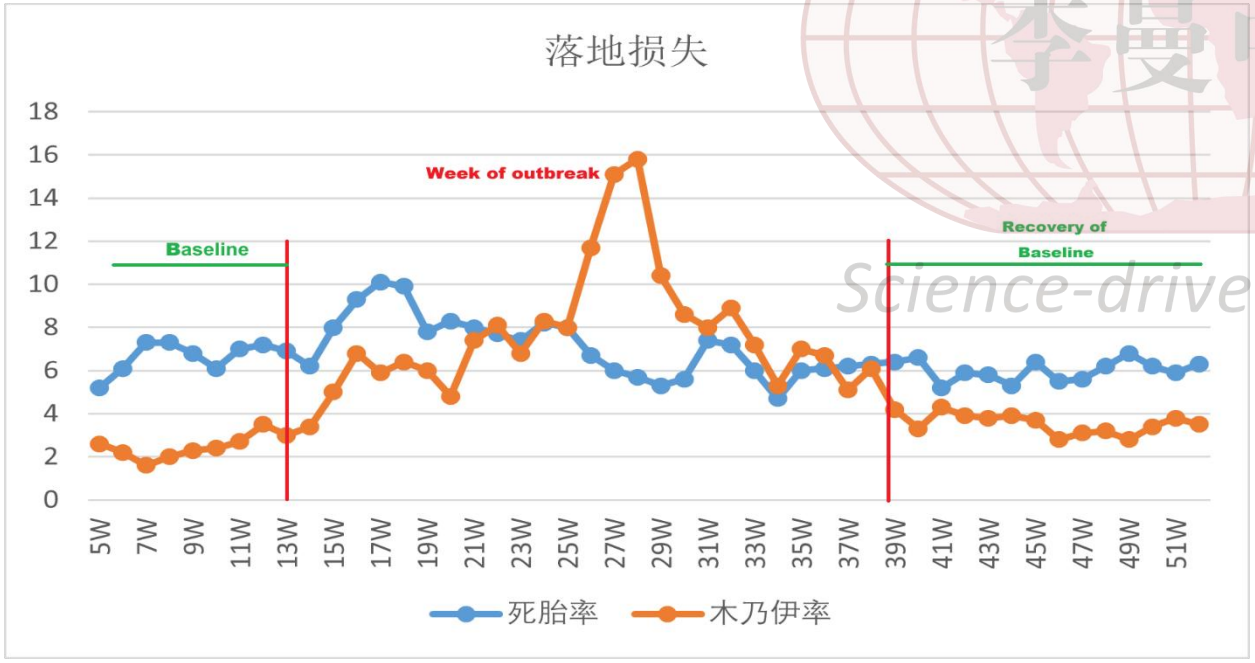


- 阴性厂：有条件的每天对异常猪进行采样检测，及时发现风险，早发现，早介入，对于生产损失的控制至关重要。
- Negative farm: If conditions permit, conduct sampling and testing on abnormal pigs every day to detect risks in a timely manner. Early detection and intervention are crucial for controlling production losses.
- 阳性厂：评估猪群是否稳定，定位异常区域，对异常猪群及时进行保健。
- Positive farm: Evaluate whether the pig herd is stable, locate abnormal areas, and provide timely health care for abnormal pigs.
- 不具备实验检测条件的猪厂，可以通过猪群的采食量监测评估猪群的蓝耳状态。
- Pig farms that do not have the conditions for experimental testing can assess the status of PRRS in their pigs through monitoring the feed intake of the pigs.
- 其它生产数据也能作为监测指标
- Other production data can also serve as monitoring indicators

2、生产成绩监测2. Production performance monitoring







- 流产异常早于落地损失、断奶前死亡率
- Abnormal abortion is earlier than landing loss and pre-weaning mortality
- 流产爆发期4-6周，恢复需要20W左右
- The abortion outbreak period is 4-6 weeks, and recovery takes about 20W
- 落地损失恢复到正常生产成绩所需要的时间24-26周
- The time required for the landing loss to return to normal production performance is 24-26 weeks
- 不同的毒株，持续的时间基本相同
- Different strains have basically the same duration

3、生产损失监测3. Monitoring of production losses

养户	头数	总日龄	来源	1W	2W	3W	4W	5W	6W	7W	8W	9W	10W	11W	12W	13W	14W	15W	16W	17W	18W	19W	20W	21W	22W	23W	24W	25W	26W	27W	累计死淘
弥勒	4899	208	A	0.00%	0.02%	0.31%	0.45%	0.22%	0.39%	0.18%	0.43%	0.35%	0.51%	0.10%	0.22%	0.48%	0.49%	0.37%	0.33%	0.24%	0.35%	0.27%	0.31%	0.33%	0.20%	0.24%	0.10%	0.10%	0.22%	0.10%	7.31%
陆良	4988	207	B	0.00%	0.00%	0.00%	0.29%	0.32%	0.94%	0.20%	0.30%	0.20%	0.22%	0.18%	0.16%	0.22%	0.06%	0.18%	0.06%	0.22%	0.10%	0.18%	0.22%	0.26%	0.18%	0.10%	0.10%	0.28%	0.14%	0.12%	5.23%
会泽	5047	188	A	0.03%	0.32%	0.22%	0.46%	0.48%	0.24%	0.63%	0.48%	0.57%	0.36%	0.53%	0.46%	0.46%	0.53%	0.34%	0.40%	0.26%	0.36%	0.28%	0.28%	0.55%	0.83%	0.61%	0.53%	0.69%			10.90%
弥勒	4079	177	A/B	0.00%	0.00%	0.27%	0.50%	0.50%	0.41%	0.41%	0.99%	1.37%	0.52%	0.16%	0.34%	0.23%	0.16%	0.09%	0.21%	0.25%	0.12%	0.25%	0.44%	0.39%	0.46%	0.24%					8.31%
弥勒	4907	160	A/B	0.00%	0.00%	0.12%	0.14%	0.43%	0.37%	0.39%	0.45%	0.22%	0.41%	0.26%	0.16%	0.43%	0.39%	0.12%	0.06%	0.20%	0.29%	0.14%	0.10%	0.10%	0.05%						4.83%
陆良	1175	160	A/B	0.09%	0.09%	0.17%	0.26%	0.68%	0.51%	0.43%	0.17%	0.00%	0.34%	0.34%	0.09%	0.00%	0.26%	0.09%	0.34%	0.17%	0.09%	0.26%	0.09%								4.47%
会泽	1499	151	A/B	0.00%	0.00%	0.40%	0.20%	0.33%	1.40%	0.93%	1.67%	0.93%	0.13%	0.67%	0.93%	0.53%	0.60%	0.20%	0.27%	0.20%	0.40%	0.13%	0.13%								10.05%
师宗	1135	156	A	0.00%	0.35%	0.35%	0.18%	0.18%	0.18%	0.00%	0.35%	0.00%	0.00%	0.26%	0.18%	0.09%	0.53%	0.18%	0.09%	0.09%	0.18%	0.09%	0.00%								3.28%
师宗	1140	152	A	0.00%	0.70%	0.26%	0.09%	0.18%	0.00%	0.00%	0.09%	0.00%	0.53%	0.79%	0.00%	0.09%	0.09%	0.09%	0.09%	0.35%	0.18%	0.00%									3.53%
师宗	791	152	B	0.00%	0.00%	0.00%	0.38%	0.13%	0.13%	0.38%	0.76%	0.00%	0.13%	0.00%	0.00%	0.13%	0.13%	0.13%	0.13%	0.00%	0.00%	0.13%									2.56%
师宗	925	150	A	0.00%	0.43%	0.22%	0.43%	0.11%	0.00%	0.32%	0.32%	0.00%	0.00%	0.65%	0.11%	0.00%	0.00%	0.00%	0.11%	0.11%	0.22%	0.22%									3.25%
会泽	5107	142	A/B	0.00%	0.00%	0.37%	0.12%	0.18%	0.23%	0.18%	0.23%	0.35%	0.45%	0.43%	0.04%	0.33%	0.43%	0.57%	0.12%	0.31%	0.23%	0.18%									4.75%
师宗	838	140	B	0.00%	0.12%	0.00%	0.12%	1.07%	0.60%	0.95%	0.72%	0.36%	0.24%	0.36%	0.60%	0.12%	0.36%	0.24%	0.24%	0.12%	0.00%										6.22%
师宗	2810	138	B	0.00%	0.50%	0.25%	0.32%	1.21%	0.93%	1.74%	1.39%	0.85%	1.03%	0.75%	0.89%	0.25%	0.11%	0.21%	0.57%	0.43%											11.43%
会泽	5734	128	A/B	0.00%	0.00%	0.37%	0.80%	0.31%	0.24%	0.73%	0.45%	0.52%	0.82%	0.52%	0.28%	0.24%	0.52%	0.31%	0.44%	0.30%											6.85%
师宗	4531	120	A/B	0.00%	0.05%	0.15%	0.07%	0.29%	0.91%	0.81%	0.22%	0.17%	0.27%	0.15%	0.20%	0.22%	0.27%	0.32%													4.10%
师宗	1069	114	A/B	0.34%	0.53%	1.07%	1.26%	0.73%	0.53%	0.60%	0.47%	0.40%	0.40%	1.07%	0.33%	0.53%	0.07%														8.33%
会泽	1967	107	A/B	0.35%	0.31%	0.46%	0.46%	0.86%	0.66%	0.66%	0.97%	0.81%	1.12%	0.46%	0.31%	1.02%	0.56%														9.01%
会泽	850	104	A	0.00%	0.59%	0.94%	0.59%	0.24%	0.59%	0.24%	0.35%	0.47%	0.35%	0.59%	0.35%	0.35%															5.65%
师宗	5194	108	A/B	0.00%	0.00%	0.79%	1.39%	1.87%	0.64%	0.56%	0.69%	0.23%	0.65%	0.50%	0.23%	0.40%															7.95%
陆良	2373	98	A/B	0.00%	0.00%	0.00%	0.00%	1.18%	0.46%	0.59%	0.38%	0.25%	0.21%																		3.07%
会泽	1341	86	A/B	0.00%	0.22%	0.15%	0.37%	0.45%	1.72%	1.19%	0.75%	1.27%	0.82%	0.45%																	7.39%
会泽	2857	83	B	0.60%	1.22%	0.74%	0.60%	0.77%	0.46%	0.63%	0.39%	0.39%																			5.80%
陆良	7993	88	A	0.00%	0.00%	0.00%	0.68%	0.43%	0.63%	0.70%	1.03%	0.89%	0.80%																		5.16%
会泽	1953	70	B	0.00%	0.41%	0.00%	0.56%	0.10%	0.56%	0.56%	0.72%																				2.91%
陆良	1362	58	B	0.00%	0.15%	0.15%	0.15%	0.66%																							1.11%
武定	6136	53	A	0.00%	0.00%	0.65%	0.54%	0.45%																							1.64%
陆良	747	52	B	0.00%	0.13%	0.52%	0.74%	0.22%																							1.61%
陆良-桑国良	2323	46	B	0.13%	1.29%	1.42%																									2.84%
师宗	3063	39	A	0.00%	0.00%	0.16%																									0.16%
东川	1304	30	B	0.00%	0.00%																										0.00%

损失类型	母猪厂蓝耳损失对比	
	A母猪厂	B母猪厂
空怀损失（母猪）	67头	45头
流产损失（母猪）	189头	276头
返情损失（母猪）	157头	89头
死胎损失（仔猪）	3602头	2885头
木乃伊损失（仔猪）	10945头	721头
折合仔猪损失	19503头	8526头

- 育肥厂的生产损失跟如何通过预警、发现发病规律、如何进行保健，通过实施针对性的保健减少蓝耳及其继发性疾病对生产的影响。
- The production losses incurred by fattening farm can be mitigated through early warning systems, identifying patterns of disease outbreaks, implementing targeted health care measures, and reducing the impact of PRRS and its secondary diseases on production.
- 母猪厂转阳，免疫和保健介入的时间不同，猪群的损失可能也会不同，
- The sow farm has turned positive, and the timing of immunization and health care intervention may vary, resulting in different losses in the pig herd,
- 相同的毒株，处理方案不同，损失也会不同。
- The same strain of virus can cause different losses depending on the treatment plan.

4、血清检测4. Serum testing

- 病毒血症金标准（适用于各阶段的猪群）
- Viraemia gold standard (applicable to pigs at all stages)
- 了解当前猪群的发病状态和感染状态，未检测到猪蓝耳病病毒，不代表一定没有病毒的感染，需结合血清学检测结果和临床表现综合分析。
- Understand the current disease and infection status of the pig herd. The absence of detection of PRRS virus does not necessarily mean that there is no infection with the virus. A comprehensive analysis should be conducted based on serological test results and clinical manifestations.
- 疾病预警和感染压力评估
- Disease early warning and infection pressure assessment
- 免疫效果评估和免疫程序调整
- Evaluation of immune effect and adjustment of immune program

栋舍	9月15日				10月15日				11月15日			
	蓝耳病原	蓝耳抗体			蓝耳病原	蓝耳抗体			蓝耳病原	蓝耳抗体		
	阳性率	阳性率	平均S/P值	最大S/P值	阳性率	阳性率	平均S/P值	最大S/P值	阳性率	阳性率	平均S/P值	最大S/P值
断奶母猪	0%	60%	0.75	0.932	0%	50%	0.558	1.463	0%	20%	0.385	1.384
妊娠30-60天	0%	90%	0.91	1.821	0%	80%	0.858	1.228	0%	50%	0.511	1.111
妊娠60-90天	0%	40%	0.706	0.786	0%	20%	0.39	0.91	0%	40%	0.537	0.914
诱情公猪	0%	90%	1.02	1.751	0%	70%	0.627	1.049	0%	60%	0.875	1.124
后备猪	0%	93%	1	2.072	0%	47%	0.661	1.41	0%	40%	0.584	0.976
问题母猪	0%	70%	1.18	2.226	0%	9%	0.376	1.086	0%	20%	0.39	0.865

5、舌尖、家庭口腔液5. Tongue tip, family oral fluid

◆ 舌尖液Tongue tip fluid

① 适用于任何年龄阶段的死猪，采样简单方便Suitable for dead pigs of any age, with simple and convenient sampling

② 通过检测死胎，评估对应妊娠母猪蓝耳状态Assessment of PRRS status in sows corresponding to pregnancies by detection of stillborn fetuses

③ 在某些猪群中，舌尖液的检出率高于血清、去势液、和家族口腔液In some pig populations, the detection rate of tongue tip fluid is higher than that of serum, castration fluid, and family oral fluid

④ 舌尖液可以用于替代脐带、胎盘，用于评估是否存在蓝耳垂直传播Tongue tip fluid can be used as a substitute for umbilical cord and placenta to assess whether there is vertical transmission of PRRS

◆ 家庭口腔液Family oral fluid

① 采样简单方便，适用于产房，评估母仔猪（窝水平）的感染状态Simple and convenient sampling, suitable for use in the delivery room to assess the infection status of both sows and piglets at the litter level

② 对于中等感染率的猪群，采用家庭口腔液进行监测具有更高的敏感性和效率For pig herds with moderate infection rates, using household oral fluid for monitoring has higher sensitivity and efficiency

6、脐带血、仔猪处理液、断奶前弱仔

6. Umbilical cord blood, piglet process fluid, and weak piglets before weaning

- 确定猪场蓝耳是否稳定，以及对下游保育育肥猪蓝耳状态的预警非常重要，需要了解新生仔猪是否存在垂直传播、带毒状态、以及群体传播情况。
- It is very important to determine whether the PRRS is stable in the pig farm and to provide early warning of the PRRS status in downstream conservation and fattening pigs. It is necessary to understand whether there is vertical transmission, virus-carrying status, and community transmission in newborn piglets.
- 脐带血主要用于评估母猪是否处于病毒血症期，以及病毒是否通过胎盘垂直传播给仔猪；脐带血样品的获取很容易，但是需要在仔猪分娩时收集，同时要注意样品受到环境污染的风险。
- Umbilical cord blood is primarily used to assess whether sows are in a viremic state and whether the virus can be transmitted vertically through the placenta to piglets. Obtaining umbilical cord blood samples is relatively easy, but they must be collected during the birth of piglets, and care must be taken to minimize the risk of environmental contamination of the samples.
- 仔猪技术液检测适合于有阉割操作的猪场，如果仅使用断尾处理液检测，该方法的敏感度会降低；与血清检测对比，技术液检测很容易增加采样数量，保持检测方法较高的敏感度；当仔猪处于病毒血症状态下时，通常能够在处理液中检出病毒。
- Piglet process fluid testing is suitable for pig farms that perform castration operations. If only tail-cutting treatment fluid is used for testing, the sensitivity of the method will be reduced. Compared with serum testing, process fluid testing is easy to increase the number of samples and maintain a high sensitivity of the testing method. When piglets are in a state of viral blood symptoms, the virus can usually be detected in the treatment fluid.
- 如果产房蓝耳不稳定，断奶前弱仔更易检出，评估断奶仔猪的感染状态。
- If the PRRS is unstable in the delivery room, weak piglets are more likely to be detected before weaning, and the infection status of weaned piglets should be evaluated.

7、猪群群其它病原监测7. Monitoring of other pathogens in swine herds

- 单一的蓝耳波动猪群健康容易控制，混合感染才是猪群不稳定的主要原因。
- The health of a single PRRS fluctuating herd is easy to control, but mixed infections are the main reason for herd instability.
- 蓝耳病毒会破坏猪的免疫系统，导致猪群更容易受到细菌病原的继发感染，加重病情，增加损失。
- ThePRRS virus can damage the immune system of pigs, making them more susceptible to secondary infections caused by bacterial pathogens, exacerbating the condition and increasing losses.
- 监测细菌病原，结合药敏试验，是蓝耳病综合防控重要的一环，有益于猪群的稳定和减少损失。
- Monitoring bacterial pathogens and combining drug sensitivity tests is an important part of comprehensive prevention and control of PRRS, which is beneficial to the stability of the pig herd and reduces losses.

[redacted]病原检测

	非瘟	蓝耳（ct值）	流感（ct值）	支原体（ct值）	猪丹毒	魏氏梭菌（ct值）	链球菌（ct值）	巴氏杆菌（ct值）	副猪嗜血杆菌（ct值）	ped	传染性胃肠炎	德尔塔冠状病毒
后备1间	//	阳性（33）	阳性（32）	阴性	阴性	阳性（34）	阳性（26）	阳性（28）	阳性（27）	//	//	//
后备2间	//	阳性（33）	阳性（32）	阴性	阴性	阳性（34）	阳性（26）	阳性（28）	阳性（25）	//	//	//
后备3间	//	阳性（35）	阴性	阳性（29）	阴性	阳性（34）	阳性（27）	阳性（33）	阳性（31）	//	//	//
后备4间	//	阳性（35）	阴性	阳性（35）	阴性	阳性（29）	阳性（27）	阳性（37）	阳性（28）	//	//	//
后备5间	//	阳性（35）	阴性	阴性	阴性	阳性（29）	阳性（27）	阳性（34）	阳性（31）	//	//	//
后备7间	//	阳性（33）	阴性	阴性	阴性	阳性（31）	阳性（28）	阳性（33）	阳性（29）	//	//	//
断奶母猪	//	阴性	阴性	阴性	阴性	阳性（29）	阳性（25）	阳性（36）	阳性（26）	//	//	//
妊娠30天	//	阴性	阴性	阴性	阴性	阳性（28）	阳性（24）	阳性（35）	阳性（26）	//	//	//
妊娠60天	//	阴性	阴性	阴性	阴性	阳性（28）	阳性（23）	阳性（37）	阳性（28）	//	//	//
妊娠90天	//	阴性	阴性	阴性	阴性	阳性（27）	阳性（23）	阳性（33）	阳性（26）	//	//	//
隔离舍猪	阴性	阳性（29-34）	阴性	阳性（34-31）	//	//	//	//	//	阴性	阴性	阴性

8、仔猪的免疫程序对下游健康的影响

8. The impact of the immunization program for piglets on downstream health

- 断奶仔猪不同的MLV疫苗免疫程序对下游生产成绩的影响
- The impact of different MLV vaccine immunization programs on downstream production performance in weaned piglets

养户	数量	免疫时间	11W死淘	平均
[redacted]	899	40日龄	8.19%	7.02%
	1099		6.86%	
	1096		5.88%	
	1097		5.07%	
	2098		9.12%	
	2107	20日龄	15.85%	16.44%
	2111		21.03%	
	1794		12.44%	

	数量	免疫时间	5W死淘	平均
[redacted]	1131	7日龄	7.58%	7.69%
	1159		4.50%	
	1250		6.40%	
	759		12.62%	
	1568		7.37%	
	753	未免疫	2.64%	4.85%
	1195		5.34%	
	2246		6.56%	

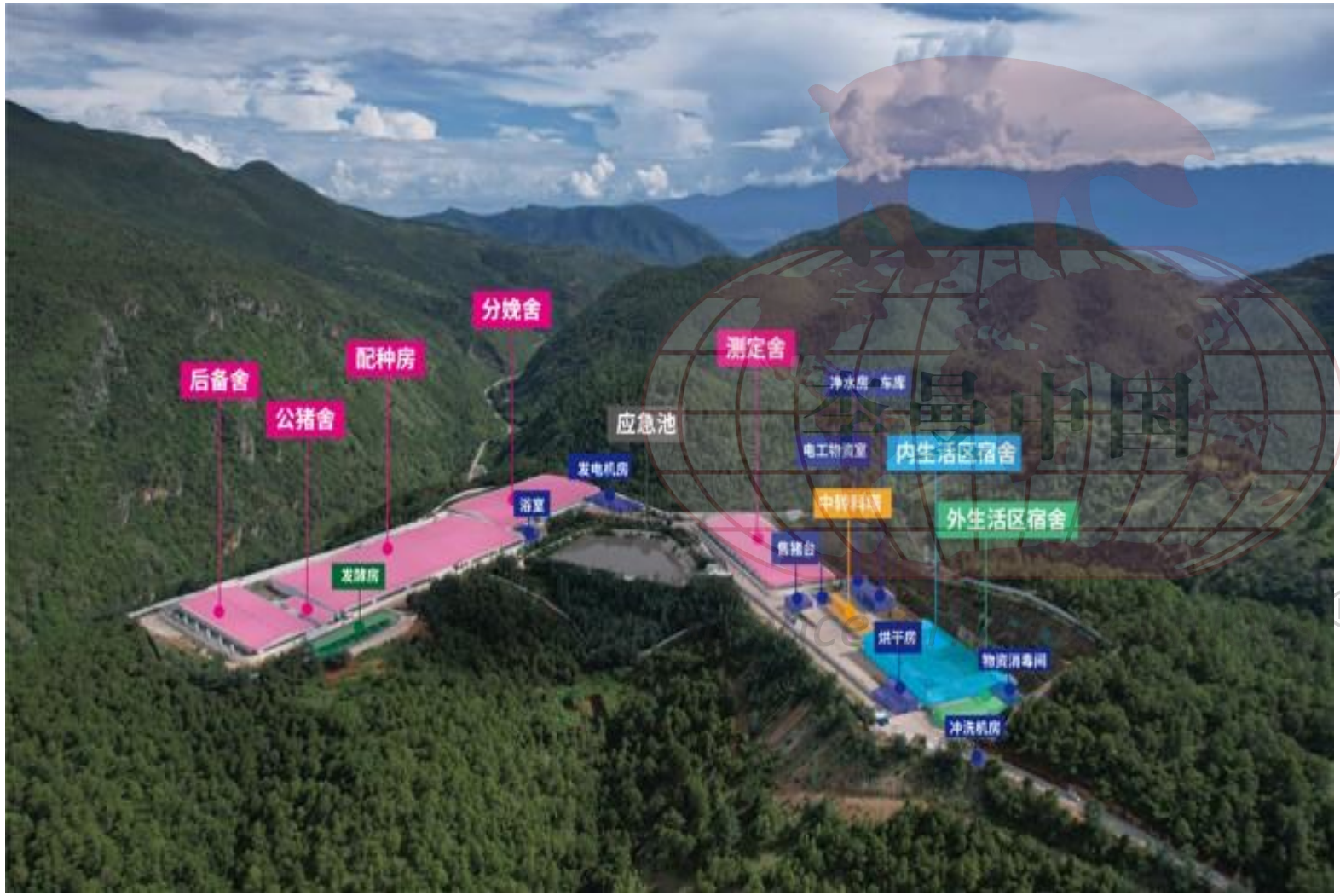
蓝耳病管控的主要措施包括：生物安全、疫苗免疫、药物防控、生产管理、监测。

The main measures for the control of PRRS include biosecurity, vaccination, drug prevention and control, production management, and monitoring.

- 免疫程序：通过监测产房仔猪脐带血、技术液、断奶前弱仔等评估产房仔猪的蓝耳感染状态，进而制度免疫时间、免疫剂量。
- Immunization program: Evaluate the PRRS infection status of piglets in the nursery by monitoring their umbilical cord blood, process fluid, and weak piglets before weaning, and then determine the immunization time and dose.
- 药物防控：监测下游保育发病规律（病原、临床症状、发病时间、其它细菌病），制度保健方案，提前介入。
- Drug prevention and control: Monitor the downstream conservation and disease occurrence patterns (pathogens, clinical symptoms, onset time, and other bacterial diseases), develop health care plans, and intervene in advance.
- 生产管理：加强巡栏、加强病弱猪的护理和个体治疗；关注环控
- Production management: strengthen patrols, strengthen nursing and individual treatment of sick and weak pigs; pay attention to environmental control

二、净化II. Eradication

一、建群前蓝耳转阳净化
I. Eradication of PRRS virus before building a group



- 存栏规模：5500头
- Inventory: 5500
- 连续生产（周批次）、场内配备测定舍后备舍和公猪舍，闭群生产、两点式饲养。
- Continuous production (weekly batches), equipped with testing sheds and boar sheds on site, closed-group production, two-point feeding.
- 改造安装空滤，场外后备厂配种
- Renovate and install air filters, and set up a gilt barn outside the site for breeding

二、净化

一、建群前蓝耳转阳净化I. Eradication of PRRS pigs turning positive before building a group

栋舍	3月10日			3月28日			4月10日		
	蓝耳病原	蓝耳抗体		蓝耳病原	蓝耳抗体		蓝耳病原	蓝耳抗体	
	阳性率	阳性率	平均S/P值	阳性率	阳性率	平均S/P值	阳性率	阳性率	平均S/P值
1栋	100%	100%	1.86	20%	100%	2.49	0%	100%	2.38
2栋	80%	100%	2.25	10%	100%	2.73	0%	100%	2.64
3栋	100%	61%	1.28	20%	100%	2.96	0%	100%	2.68
4栋	100%	90%	1.52	40%	100%	2.36	7%	100%	2.46
5栋	100%	97%	1.28	30%	100%	2.79	0%	100%	2.54

- 21年2月中旬开始建群（从外面引种7000头蓝耳阴性种猪），2月21日在引种过程中在对车体采样时，有一辆车样品检测到了蓝耳病原阳性。
- In mid-February 2021, a group was established (with 7,000PRRS negative breeding pigs introduced from outside). On February 21st, during the introduction process, a sample from one of the vehicles tested positive for PRRS pathogen.
- 经过测序鉴定：HJJ20210221毒株与JXA1-P170等毒株处于同一系统分支上，与JXA1-P170系列毒株的高同源性为99.7%。
- After sequencing and identification, it was found that the HJJ20210221 strain was on the same systematic branch as JXA1-P170 and other strains, with a high homology of 99.7% to the JXA1-P170 series of strains.
- 推测可能在供种厂就已经潜伏感染（引种前评估为阴性，引种评估到转猪间隔2周左右）
- It is speculated that the infection may have been latent in the breeding farm (the assessment before introduction was negative, and the interval between introduction assessment and pig transfer was about 2 weeks)
- 前期采取自然感染，感染病毒血症逐步降低，4月15日开始免疫蓝耳弱毒苗
- Natural infection was adopted in the early stage, and the infection of viremia gradually decreased. On April 15th, the attenuated vaccine ofPRRS was immunized

二、净化

一、建群前蓝耳转阳净化I. Eradication of PRRS-positive pigs before group establishment

蓝耳净化时间记录表

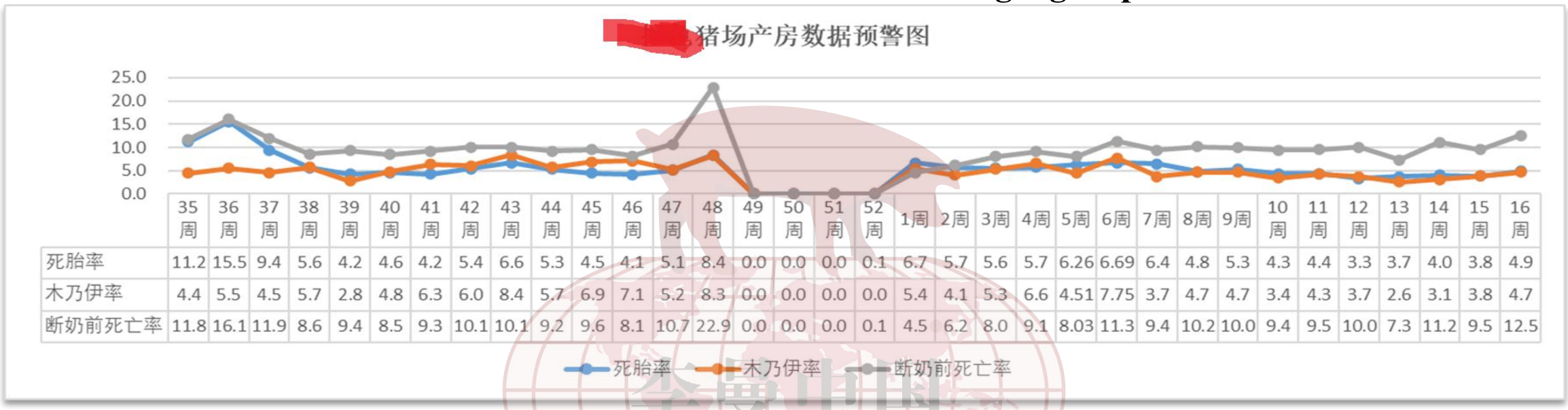
周次-2021	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
公猪精液	1/18	0/28	0/29	0/23	0/26	0/25	0/22	0/19	0/30	0/23	0/21	0/23	0/19	0/23	0/23	0/25	0/32	0/15	0/40	0/31	0/27	0/39	0/35	0/20	0/31	0/27	0/35	0/38	0/41	0/37	0/22
异常母猪	0	0/17	0/9	0/8	0/1	0/3	0/14	0/5	0	0/3	0/10	0/2	0/3	0/2	0/2	0/5	0	0/5	0/4	0/7	0/7	0/7	0/13	0/4	0/9	0/8	0/7	0/8	0/5	0/2	0/17
睾丸液+尾根血	0/29	0	0	0	0/57	0	0/16	0/11	0/14	0/11	0/24	0	0	0	0	0	0/37	0/23	0/4	0	0/36	0/32	0/20	0/17	0/5	0/35	0/54	0/35	0/43	0/41	0/47
断奶仔猪血清	0	0	0	0	0	0	0/14	0/14	0/41	0/63	0/15	0/48	0/33	0	0	0	0	0	0/10	0/10	0	0/6	0/6								
口腔液（母猪+仔猪）	0	0	0	0	0	0	0/43	0/38	0/17	0/15	0/15	0/56	0/32	0	0	0	0	0/5	0/11	0/10	0	0/24									
自留后备																							自留	自留	自留	自留	自留	自留	自留	自留	自留
																										双阴	双阴	双阴	双阴	双阴	双阴
日期-周始	9. 19	9. 26	10. 3	10. 10	10. 17	10. 24	10. 31	11. 07	11. 14	11. 21	11. 28	12. 05	12. 12	12. 19	12. 26	1. 02	1. 09	1. 16	1. 23	1. 30	2. 06	2. 13	2. 20	2. 27	3. 06	3. 13	3. 20	3. 27	4. 3	4. 10	4. 17

5周技术液 | 11周（技术液+断奶仔猪血） | 自留后备抗原抗体双阴

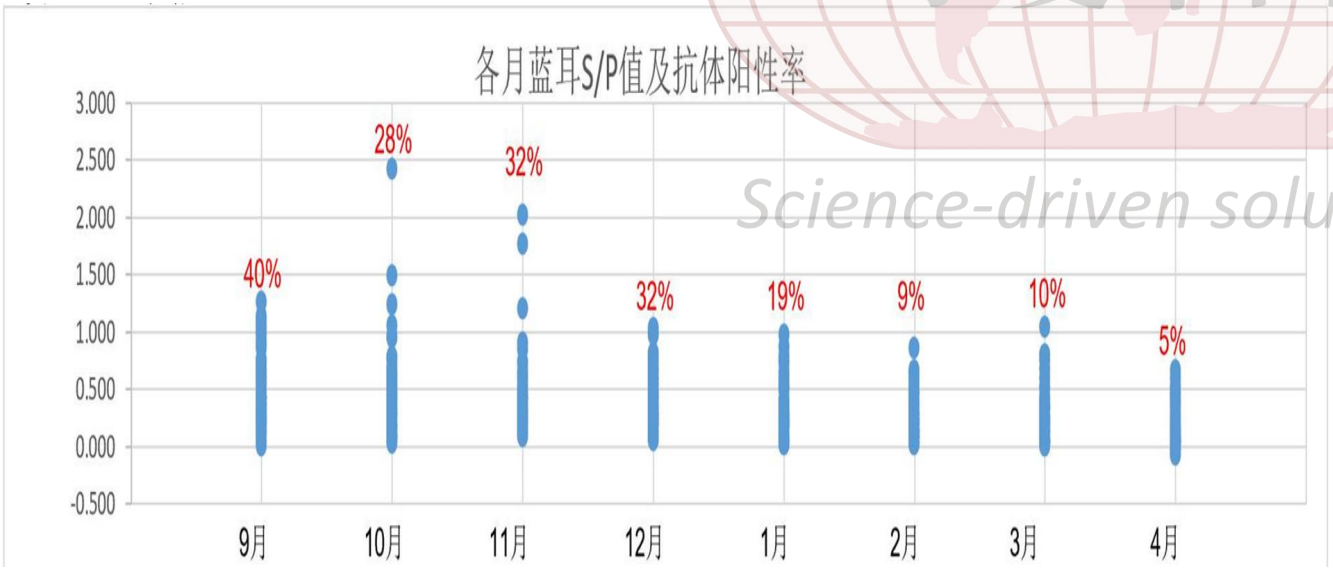
- 6W转阳排毒，自然感染到野毒病毒血症降低到10%左右，需要月60天。
- 6W post-exposure prophylaxis (PEP) can reduce the risk of natural infection to wild-type virus viremia to about 10%, which takes about 60 days.
- 两针MLV免疫后，猪群里流行毒株转变为疫苗毒。
- After two doses of MLV immunization, the prevalent strain in the pig herd was transformed into a vaccine virus.
- 疫苗免疫后到产生阴性的断奶仔猪，间隔20周（可能更早）
- The interval between vaccination and the production of negative weaning piglets is 20 weeks (possibly earlier)
- 由于中间周次有生产断档，延长了监测时长、
- Due to production interruptions during the intermediate weeks, the monitoring duration was extended
- 净化耗时：54周（新建群，后备配种前感染，到开始自留种）
- Eradication duration: 54 weeks (from the establishment of a new herd, infection before back-up breeding, to the start of self-sustaining breeding)

二、净化

一、建群前蓝耳转阳净化I. Eradication of PRRS before building a group



	35周	36周	37周	38周	39周	40周	41周	42周	43周	44周	45周	46周	47周	48周	49周	50周	51周	52周	1周	2周	3周	4周	5周	6周	7周	8周	9周	10周	11周	12周	13周	14周	15周	16周
死胎率	11.2	15.5	9.4	5.6	4.2	4.6	4.2	5.4	6.6	5.3	4.5	4.1	5.1	8.4	0.0	0.0	0.0	0.1	6.7	5.7	5.6	5.7	6.26	6.69	6.4	4.8	5.3	4.3	4.4	3.3	3.7	4.0	3.8	4.9
木乃伊率	4.4	5.5	4.5	5.7	2.8	4.8	6.3	6.0	8.4	5.7	6.9	7.1	5.2	8.3	0.0	0.0	0.0	0.0	5.4	4.1	5.3	6.6	4.51	7.75	3.7	4.7	4.7	3.4	4.3	3.7	2.6	3.1	3.8	4.7
断奶前死亡率	11.8	16.1	11.9	8.6	9.4	8.5	9.3	10.1	10.1	9.2	9.6	8.1	10.7	22.9	0.0	0.0	0.0	0.1	4.5	6.2	8.0	9.1	8.03	11.3	9.4	10.2	10.0	9.4	9.5	10.0	7.3	11.2	9.5	12.5



- 死胎率、木乃伊率、断奶前死亡率受蓝耳影响时间段比较小。
- The stillbirth rate, mummification rate, and pre-weaning mortality rate are relatively small affected by PRRS.
- 母猪群免疫MLV疫苗后52周，抗体阳性率降到5%。
- After 52 weeks of vaccination with MLV vaccine in the sow herd, the antibody positive rate dropped to 5%.

二、净化

二、生产猪厂蓝耳转阳净化 II. Eradication of PRRS virus in pig production plants

- 存栏规模：8000头
- Inventory: 8000 heads
- 连续生产（周批次）、场内配备测定舍后备舍和公猪舍，闭群生产、两点式饲养。
- Continuous production (weekly batches), equipped with testing sheds and boar sheds on-site, closed-group production, and two-point feeding.
- 空滤厂（亚高效）
- Air Filter farm (Sub-High Efficiency)

二、净化

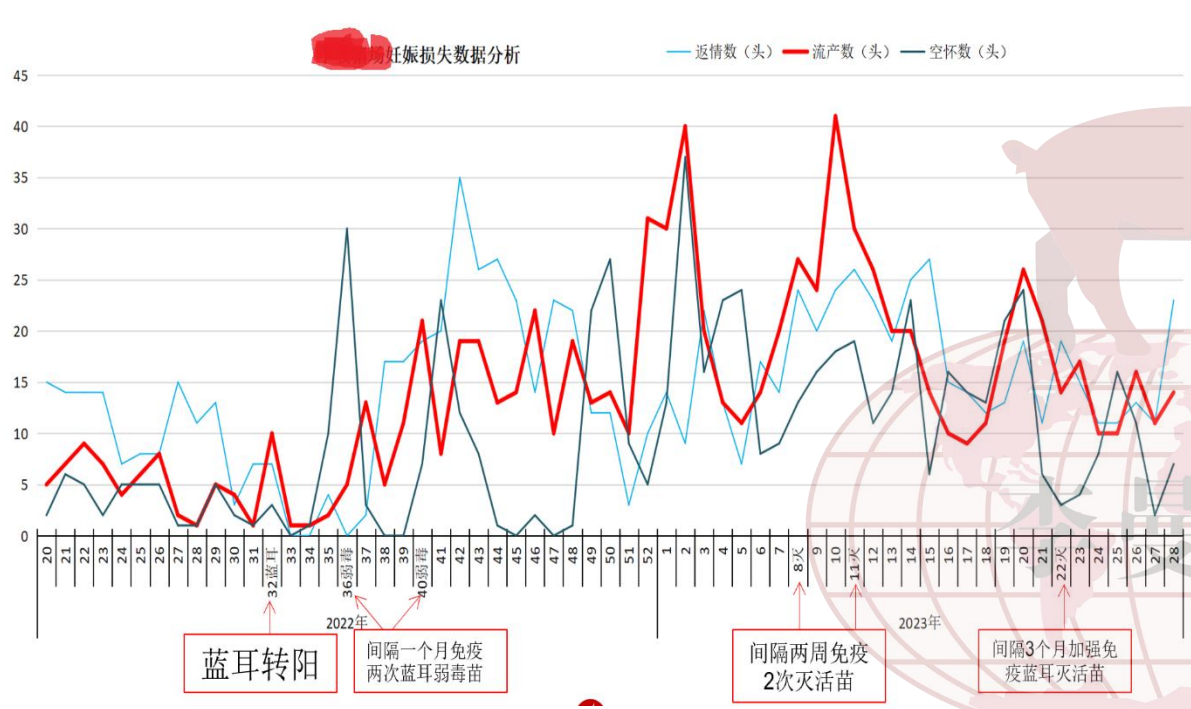
二、生产猪厂蓝耳转阳净化II. Eradication of PRRS positive pigs in production plants

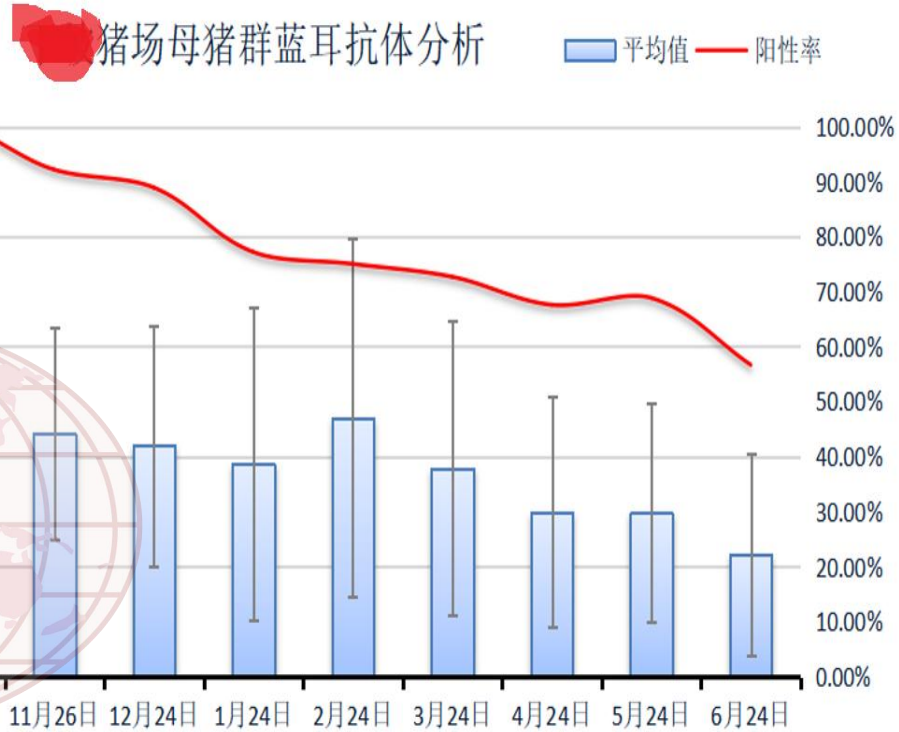
蓝耳转阳、尝试拔牙失败			分别免疫2次MLV			持续监测								自留后备
……	33W	……	37W	……	40W	……	20W	……	……	……	42W	……	……	2W
					33周后，技术液（睾丸液+尾根血）阳性率降低到2.7%			从20W-42W，技术液隔1-2周就会出现个别阳性，阳性率在1%以下；异常母猪也是低阳性率检出				连续12W技术液和断奶前弱仔血样病原检出为0		

- 测定舍转阳，拔牙失败，生产业务交叉，大群处于感染潜伏期。
- Determination of seroconversion to positive, failure to extract teeth, cross-over of production operations, and large groups in the incubation period of infection.
- 两针MLV免疫后，大群没有快速稳定（阳性排毒猪能检测到野毒）。
- After two doses of MLV immunization, the herd did not quickly stabilize (wild virus could be detected in positive detoxified pigs).
- 疫苗免疫后到产生阴性的断奶仔猪，间隔20周（大部分能母猪能产生阴性仔猪，但是个别母猪垂直传播持续时间比较长，长达55W）
- The interval between vaccination and the production of negative weaning piglets is 20 weeks (most sows can produce negative piglets, but some sows have a longer duration of vertical transmission, up to 55 weeks)
- 净化耗时：74周（正常生产母猪厂，感染转阳到开始自留种）
- Eradication duration: 74 weeks (from the time the sow farm becomes infected and tests positive to the commencement of self-preservation breeding)
- 封群前，后备舍和测定舍留种接近2500头，日龄跨度21d-200d
- Before the herd was sealed, there were nearly 2,500 gilt and test animals, with a daily age range of 21 days to 200 days

二、净化

二、生产猪厂蓝耳转阳净化 2. Eradication of PRRS positive pigs in production farm





- 两针MLV免疫后，大群没有快速稳定，空流返损失持续时间比较长，长达50周，远高于正常的24W；跟后备补入带来的不稳定也相关。
- After two doses of MLV immunization, the large group did not stabilize quickly, and the duration of airflow loss was relatively long, up to 50 weeks, far higher than the normal 24 weeks. This is also related to the instability caused by the addition of replacements.
- 抗体阳性率持续时间长
- The duration of antibody positivity is long

小结Summary

◆ 监测Monitor

蓝耳病防控中，对猪群进行全面的监测，可以帮助管理者评估猪群感染或免疫状态、制定合理的免疫和用药方案、调整猪厂的生产流程、控制入群节律和时间，从而控制猪群健康稳定，降低生产损失。

In the prevention and control of PRRS, comprehensive monitoring of the pig herd can help managers assess the infection or immune status of the pigs, develop reasonable immunization and medication plans, adjust the production process of the pig farm, and control the rhythm and time of entering the herd, thereby controlling the health and stability of the pigs and reducing production losses.

◆ 净化Eradication

- 后备建群净化：先让后备猪充分感染，整个群体快速感染，建立均一的感染状态，猪群稳定后（野毒病毒血症阳性率10%以下），再用疫苗免疫（是否可以不用疫苗免疫），然后封群，监测，待猪群分娩，很快能产生阴性的仔猪。对生产影响和损失不大。
- Eradication of gilt herd: First, allow the gilts to be fully infected, ensuring rapid infection throughout the entire herd and establishing a uniform infection status. Once the herd is stable (with a wild virus viremia positive rate below 10%), vaccinate the pigs (or not vaccinate them, depending on the situation). Then, close the herd and monitor it. After the pigs give birth, they will quickly produce negative piglets. This process has little impact on production and causes minimal losses.
- 生产猪厂蓝耳净化：猪群蓝耳不稳定，净化周期长，关键点在于如何让猪群蓝耳快速稳定，蓝耳稳定后再净化会比较容易成功。
- Eradication of PRRS in pig farms: The PRRS in pig herds is unstable and the eradication cycle is long. The key point is how to quickly stabilize the PRRS in pig herds. After the PRRS is stabilized, eradication will be easier to succeed.
- 蓝耳净化面临的最大挑战在于封群带来的生产损失，是否能结合生产管理、生产流程、蓝耳感染和免疫状态做到不封群净化。
- The greatest challenge in PRRS eradication lies in the production losses incurred due to herd closure. The inquiry is whether it is feasible to achieve eradication without herd closure, by integrating production management, production processes, PRRS infection, and immune status.

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