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**Efficacy of *Saccharomyces cerevisiae* strain MIIP treatment in porcine reproductive and respiratory syndrome (PRRS)-positive swine farm: A trial-based evaluation**

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**Abstract:**

**Background/Objective:**

Porcine reproductive and respiratory syndrome (PRRS) poses significant challenges to swine health, causing reproductive failure in sows and respiratory illnesses in pigs. This study aims to assess the efficacy of *Saccharomyces cerevisiae* strain MIIP treatment in PRRS-positive commercial swine farms.

**Methods:**

Three trials were conducted in Taiwan on PRRS-positive swine farms. Trial 1 involved 16 PRRS antibody-negative piglets aged 4 weeks, randomly assigned to control or MIIP groups. Serum samples were obtained after 4 weeks for PRRS antibody detection. In Trial 2, 0.1% MIIP was administered to an 8-week-old pig herd for 5 months, with serum samples monitored for PRRS antibodies at baseline, cessation, and two months post-treatment discontinuation. Trial 3 assessed MIIP in a PRRS-positive pig population, collecting serum samples at baseline and 3 months later. Serum samples were analyzed using the IDEXX HerdChek PRRS X3 antibody test kit, with an S/P ratio ≥ 0.4 indicating antibody positivity.

**Results:**

In Trial 1, all 4-week-old piglets were initially PRRS antibody negative, with a mean S/P ratio of 0.04±0.04. After 4 weeks, the control group exhibited a significant increase in PRRS antibody positivity (S/P ratio: 1.48±0.30, p<0.001), whereas the MIIP group remained antibody negative (S/P ratio: 0.00±0.00, p<0.05). In Trial 2, initial antibody positivity (S/P ratio: 1.47±0.52) among pigs decreased significantly after 5 months of MIIP treatment (S/P ratio: 0.29±0.24, p<0.01), rebounding to 100% positivity at 2 months post-discontinuation (S/P ratio: 1.66±0.26, p<0.001). Trial 3 demonstrated a reduction in antibody positivity from 100% (S/P ratio: 1.09±0.64) to 0% (S/P ratio: 0.06±0.06, p<0.01) after 3 months of MIIP treatment.

**Conclusion:**

*S. cerevisiae*, renowned for its capacity to enhance IgA antibody production, may impede PRRSV infection at the mucosal level, potentially curtailing viral transmission. The findings support MIIP's efficacy in mitigating PRRSV in commercial swine farms, advocating its integration in PRRS eradication initiatives.

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**Keywords:**

Porcine reproductive and respiratory syndrome (PRRS), *Saccharomyces cerevisiae*, efficacy, swine farms, antibody positivity