

Artificial insemination in pig:

Technology for producing quality piglets in Nagaland

Mahak Singh¹, M K Patra², R Talimoa Mollie³, Ebibeni Ngullie⁴ and D J Rajkhowa⁵

ICAR- Research Complex for NEH Region, Nagaland Centre, Medziphema, Nagaland 797 106

Pig rearing is an integral part of traditional Naga life. The rural tribal population comprises about 80% of the state who are mostly engaged in agriculture and some form of animal husbandry. Pig is most important livestock which plays an integral role in improving the economic status of the tribal and weaker section of the Nagaland. Pig alone accounts for 55.38% of the total livestock population in Nagaland, but still a wide gap exists between the demand and availability of pork mainly due to traditional production system. Nagaland is the highest pork consuming state on per capita basis. The swine population of Nagaland stood at 0.698 million at the last estimate (2013) which is an immediate increase from 0.504 million (2012). Out of this, 75.59% are exotic or mixed while 24.41% are indigenous breeds. However due to indiscriminate breeding the genetic potential of the swine population has become unpredictable and there arises an urgent need to introduce and supply improved germplasm in the state.

Key words: Artificial Insemination, Germplasm, Quality Piglet

IN Nagaland households, pigs are reared, the highest population density of pigs was in Dimapur district (417/1000 persons). Hampshire, Large black, Ghongroo and Burmese black are the popular breeds reared. Naga people prefer black coloured pigs for consumption. The swine population consists of crosses of these pigs.

The pig population at the field level was also found to be non-descript. Mostly, women and aged people were engaged in rearing of pigs and the rural youth were less interested in piggery as a means of income. Tribal farmers rear the pig for fattening purpose and rearing for breeding purpose is almost absent. There used to be one boar for four to five villages, which makes taking the female to male for breeding difficult, besides promoting inbreeding. Also, the natural service rendered by the farmers is costly and costs around ₹ 2000 to ₹ 3000 per natural service or a piglet in exchange of breeding. In spite of several opportunities in pig based entrepreneurship, the

farmers face several challenges mainly due to lack of quality germplasm, lack of availability of good boar for breeding and lack of any breeding strategy.

Therefore, an urgent intervention was required for turning around the piggery sector in Nagaland. The main requirements were supply of improved germplasm and increasing the average litter size per farrowing. Artificial insemination (AI) was introduced in Nagaland for the first time by ICAR- Nagaland centre, under Mega Seed project on Pig in 2013. ICAR- Nagaland centre, is the only place in the state where liquid boar semen for AI is being produced.

The first successful AI was carried

out in 2013 and since then it has been introduced in the field and farmers are reaping the benefits (Table 1). The improvement of germplasm through supply of quality piglets was done and AI with liquid boar semen from superior sires was started. Calculations done considering the local conditions show that a farmer saves ₹ 1500/- to ₹ 2000 AI as compared to natural service. Subsidized rates for liquid semen, easy availability, insemination and the promise of superior germplasm without inbreeding problems give a very attractive option to farmers. Thus, AI is a much cheaper and easier method of improved production and the farmers

Table 1. Performance of AI in MSP pig farm

Year	No. of insemination	No. of animals conceived	Conception rate	Service per conception	Litter size	Total piglets farrowed
2013-14	60	45	75	1.66	9.26	416
2014-15	56	47	83.93	1.19	10.09	470
2015-16	79	46	58.23	1.72	8.13	372
2016-17	153	122	79.74	1.25	10.21	962
Total						2220

are leaning towards this technology as observed from the slow but certainly increasing demand of semen on yearly basis. Since 2009, a total of more than 4,497 piglets of Gunghroo and Hampshire cross have been supplied to farmers from ICAR-Nagaland Centre. At the farmers field, the artificial insemination was started in a modest manner, now it is showing incredible success. More than 17 trainings on various aspects of piggery production including AI has been given since May 2012 and 800 plus farmers have been given by AI.

Response to capacity building programmes for AI awareness and development of insemination skills among farmers, unemployed youth and veterinary practitioners has been encouraging, as evidenced by the number of farmers taking up AI within a short range of two and half years. AI technique has been successfully implemented in several villages in Dimapur, Phek and Kohima districts. However the demand from other districts earnestly dictates the need for establishing AI units in each district to meet the demand for superior germplasm. The introduction of this technology is certainly generating a gradual and irreversible impact on pig rearing practices in Nagaland. In the year 2017-18 (April-september), at Mega Seed Project on pig farm, a total of

Table 2. Performance of AI at the field level

Year	No. of insemination	No. of animals conceived	Conception rate	Service per conception	Litter size	Total piglets farrowed
2013-14	25	17	70	1.4	9.26	157
2014-15	66	47	71.21	1.40	6.17	289
2015-16	200	149	74.5	1.34	7.15	1,065
2016-17	141	124	87.94%	1.13	9.39	1,164
Total						2,675

98 AI was done and 508 piglets farrowed from 49 farrowings. Whereas at the field, a total of 213 AI was done and 1,682 piglets farrowed from 179 farrowings.

Areas covered by ICAR Nagaland Centre: Dimapur town area, Diphupar village, Molvom, Moava, Ngwalwa, Heningwalwa, Gaili, Punglwa, Medziphema, Jharnapani, Kukidolong, Chekiye, Manja, Zubza, Niuland sub-division, Kohima Town, Kohima Village, Jotsoma, Phesama, Kigwema, Phek, Chumukedima, Pherima, Bungsang, and Wokha were covered by ICAR-Nagaland centre, for AI successfully in 41 locations for the first time.

As compared to the farm statistics where the population is more or less same, the field level shows a continuous growth (Table 2) and it will only show higher growth as more farmers adopt the technology.

Impacts of AI

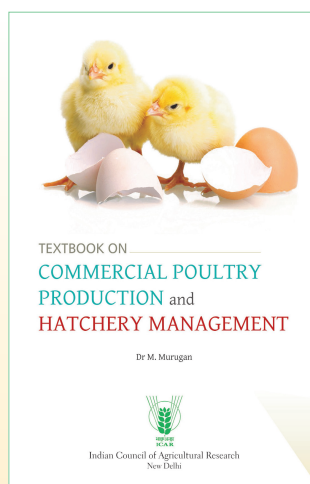
- The average litter size has increased by two piglets per farrowing.

- Farmers are able to invest more money on the feeding and healthcare using the money saved by AI.
- Servicing has become more convenient. It is just a telephone call away, anytime from anywhere.
- The farrowing interval has decreased as result of easy availability of semen.
- High performing animals are now coming up in the field.
- Less reports of inbreeding related congenital defects from the field.
- More youth have taken up piggery in both rural and urban areas.
- Rearing pigs for breeding purpose is now getting more popular as compared to fattening units which was more attractive before as evident by increasing number of artificial insemination per annum.

¹Scientist, Animal Reproduction and Gynaecology, ICAR Nagaland Centre,

²Scientist, ICAR-IVRI, Izatnagar, Bareilly. Corresponding author's email: mahaksinghivri@gmail.com

Textbook of Commercial Poultry Production and Hatchery Management



The textbook on Commercial Poultry Production and Hatchery Management has been brought out by ICAR, keeping in mind the importance of poultry industry in the current agricultural scenario. It is a major industry in livestock sector offering promising employment opportunities throughout India for veterinary and animal science graduates.

The book has been designed and written in a lucid manner to prepare an exhaustive information source for undergraduate students with special reference to Indian farming and business conditions. The book consists of 16 chapters on different aspects of the poultry production. Each chapter has practice exercise at the end for better understanding of concepts. We hope that this book will be able to serve its purpose.

TECHNICAL SPECIFICATIONS

No. of pages : i-vi + 162 • Price : ₹ 330 • ISBN No. : 978-81-7164-183-3

For obtaining copies, please contact:

Business Manager

Directorate of Knowledge Management in Agriculture
Krishi Anusandhan Bhavan-I, Pusa, New Delhi 110 012
Tel : 011-25843657, Fax 91-11-25841282; e-mail : bmicar@gmail.com