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Short Communication

Technology Gap Analysis of Dairy Productivity in Bhadohi District (Uttar Pradesh)

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It is now widely accepted fact that training to farmers and farm women increases the technical knowledge regarding package of practices. KVKs are playing a vital role across the rural economy in distinguish field as animal husbandry, horticulture, plant protection and food processing. In Bhadohi district, the farmers specially rears Cattle & Buffalo were not regularly follow vaccination schedule and even not vaccinate their animal as a superstition that the vaccination kills the animal and in large animal farmers reluctant to vaccinate their animal against the contagious diseases. KVK Bhadohi had done intensive efforts on training about advantages of vaccination against contagious diseases in domestic animals, demonstration on vaccination in domestic animal by Triovac, Raksha H.S, Raksha FMD. The present study was conducted to impact assessment of front line demonstration on vaccination against contagious diseases in cattle and buffalo in the operational area of the KVK, Bhadohi.

The data output were collected from both vaccinated villages as well as control (Unvaccinated) village and cost of vaccination, net income and benefit were also worked out. The morbidity, mortality and case fatality rates due to different diseases were determined using standard statistical indices. For estimation of mortality and morbidity rates in bovines, the population was taken as mid-year population i.e. May 2013 population. Formulae used for mortality and morbidity rates and case fatality rates were: Morbidity Rate (%) = [No. of cases observed during study period/Population (mid year)]x100 Mortality Rate (%) = [No. of deaths observed during study period / Population (mid year)]x100 Case fatality rate (%) = [No. of animals died during study period / No. of cases of diseases during study period]x100. The total economic loss due to diseases in bovines was worked out as sum of (A) mortality loss, (B) loss in milk yield and (C) cost of treatment of affected animals. The total economic loss was expressed as T_L =A+B+C Loss from mortality was worked out as the product of number of died animals (D) due to the disease and probable market value(P) of the animal. A=D×P

The loss due to direct decline in milk production (B_1) was estimated by formula:

$\mathbf{B_1}$ = (I – D) P L Z M Where, I = Number of infected animals

D = Number of animals died

P = Proportion of animals in milk

Z=Annual average milk yield per milch animal

L = Proportion of lactation lost

M = Price of milk

The milk loss due to increased abortions (B_2) were estimated from equation:

$$\mathbf{B_2} = [(12/C) - \{12/(C + 13.5\ A)\}] (I - D)\ P_1\ Y\ M$$

Where, C =Calving Index

A = Increased abortion rate

Y=Average lactation yield per milch animal

The problem of non-conception caused by a disease increases the inter-calving period (**B_3**) and thus lower number of animals will be in milk at any given time. As a result of non-conception or delayed conception, the milk output gets reduced. An average delay of 3 months in the next conception was assumed for all the animals affected by the disease. The loss of milk was calculated by the reduction in proportion of lactating animals in any year multiplied by the average milk yield per in milk bovine per year and by the price M[2].

$$b_3 = [(12/C) - \{12/(C + 3)\}] (I - D)\ P_1\ Y\ M$$

C = Treatment costs

C=I Tc Where, Tc = Average treatment cost of an infected animal(INR)

The Village has selected and PRA, RRA and training of the farmers were completed before vaccination programme among the cattle of the village. For conducting FLDs, farmers were identified/ selected following the survey suggested by Choudhary (1999). The vaccinated and unvaccinated cattle were monitored continuously for a years. The data were collected from the farmers with the help of a well structured questionnaire. The productions of animal and economic returns were calculated and compared with the control unvaccinated cattle. The data were tabulated to make inferences in terms of Production obtained, increase in production and monetary benefits.

a. Extension gap = vaccinated animal production-unvaccinated animal production

b. Technology gap = Potential production of the animal-vaccinated animal production

c. Additional return = return from vaccinated cattle-return from unvaccinated cattle

d. Technology index = $\dfrac{\text{Potential production of the animal-vaccinated animal Production} \times 100}{\text{Potential production of the animal}}$

The data presented in table 1 showed that the vaccinated animal in Bhadohi district in two years 2010-11 and 2012-2013, however the average production of milk may be due to incidence of diseases, mortality, morbidity, calf mortality during the lactation period. The data presented in table 2 shows the average milk production by the vaccinated and unvaccinated animal during the year 2010-11 and 2012-13 the FLDs conducted.

Table 1: Year-wise production and productivity in cattle

Years	Animal	No. of Animal treated	No. of Animal as Control	Average production of vaccinated cattle (lit/animal/day)	Average production of unvaccinated animal (lit/animal/day)	Difference in average production of treated and untreated animal (lit/animal/day)
2010-11	Cattle	122	50	21.04	17.34	3.7
	Calf	36	10	-	-	-
2012-13	Cattle	228	70	22.45	16.77	5.68
	Calf	47	10	-	-	-

The economic analysis were shown in Table 2, this indicates that the net return before the application of technology were Rs. 5288 and 8916 per lactation/animal in the years 2010-11 and 2012-13 respectively but net return were recorded after proper implementation of the technology in the targeted animal against the contagious diseases were Rs. 15049 and 21292 per lactation/animal.

Table 2: Milk yield of the cattle per lactation before and after implementation of technology

After application of Technology						Before application of Technology			
Years	Potential production of cattle(lit/lactation/animal)	Average production of vaccinated cattle(lit/lactation/animal)	Gross cost(Rs.) /lactation /animal	Gross return(Rs.)/lactation/animal	Net return(Rs.) /lactation /animal	Average production of unvaccinated cattle(lit/lactation/animal)	Gross cost(Rs.) /lactation/animal	Gross return(Rs.)/lactation/animal	Net return(Rs.) /lactation /animal
2010-11	5400	4834	91275	106324	15049	3845	81233	86521	5288
2012-13	5400	4867	91275	112567	21292	3865	82321	91237	8916

In Table 3 shows the yield Gap analysis which shows the percent increase in the milk production in treated group over farmers practices in 2010-11 were 20.45% and in the years 2012-13 20.58%. This may be due the incidence of diseases in the dairy animal and calf mortality[1].

Table 3: Yield gap analysis of vaccinated and unvaccinated cattle production

Year	Production (lit./lactation/animal)			Increase over local/ farmers practice (%)	Extension gap(lit./lactation/animal)	Technology gap	Technology Index(%)
	Potential	Vaccinated	Unvaccinated				
2010-11	5400	4834	3845	20.45	989	566	18.31
2012-13	5400	4867	3865	20.58	1002	535	18.55

The calculation of extension gap between the vaccinated groups and farmers practice are major objective of conduction the FLDs. The extension gap was calculated and it ranged between 989 to 1002 lit./lactation/animal (Table 3). The factors attributing the extension gap were may be due to the less awareness about the vaccination, incidence of diseases

contamination, time of outbreak and its proper management measures.

The technology gap was highest (566 lit./lactation/animal) during the years 2010-11 and 535 lit./lactation/animal in 2012-13. This may be due to adoption of recommended technology.

References

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