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TO BUTCHER OR NOT TO BUTCHER - AN ANALYSIS OF SOME ISSUES CONCERNING CATTLE HOLDINGS, MILK AND MEAT PRODUCTION IN KERALA

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Introduction

1 Vinoba Bhave is a respected national leader. From twenty second April of this year he has threatened to go on indefinite fast. His reason is simple. There is cow slaughter in Kerala and West Bengal and since this affects adversely agricultural production, is disastrous to survival of human population. The Acharya has, therefore, appealed to the respective state governments for total legal ban on cow slaughter. Further, he has thrown out a threat; should they fail to comply with his mandate, he will go on fast till his demand is granted. The Kerala and West Bengal Governments have already expressed their inability to bring out any legal ban on cow slaughter.[1] The followers of the Acharya are busy organising public opinion for a total ban on cow slaughter, eventhough their chances of success have so far been bleak.[2] At least in Kerala, public opinion is strongly against the movement. This is evident from the numerous write-ups and articles appearing in the prominent local news papers.[3] However the whole campaign seems to have been mounted on pseudo-religious arguments and appeals. Neither the Acharya nor his followers have succeeded in giving a rational economic explanation for banning cow slaughter.

2. As we all know the holy cow has remained for long a fertile ground for the religious leaders of Hinduism and politicians with strong vested interests for diverting public attention from pressing social and economic

problems of the country. They have often misinterpreted the theories on origin and evolution of the sacred cow and thwarted the emergence of a rational mechanism for livestock adjustment in the country. In their attempts, they even succeeded in smuggling the sacred cow concept into the directive principles of the constitution (in the name of cow protection) and winning over most of the State governments (except Kerala and West Bengal) to implement a total legal ban on cow slaughter.[4] Vinoba's vow to stake his life for mending the ways of these two Mleccha states marks the logical culmination of this triumphant march of vested interests. It is high time to knock off the emotional base of this controversy and face squarely the facts. What, for instance, is the impact of cow slaughter on the livestock economy as well as on the agricultural production system? Available evidence from Kerala shows that the existence of an efficient mechanism for the elimination of unproductive animals has immensely promoted its bovine economy. This paper is an attempt to illustrate this point: to explain the favourable impact that cow slaughter has had on the livestock economy and agricultural production of Kerala. We begin our analysis with a discussion of the extent of bovine slaughter in Kerala; then we pass on to a brief discussion of the factors for the increase in the extent of cattle slaughter in recent years; in the last section, the effect of slaughter on rates as well as on the size and composition of bovine herds in the state is examined.

Scale of Slaughter

3 Statistics on the slaughter of bovines in Kerala are available from the mid-fifties. They relate to the number of animals slaughtered in the licensed houses in urban and semi-urban areas. In 1956, about

1.3 lakhs bovines were reported to have been slaughtered in the licensed slaughter houses in this state, of which about 70 per cent was cattle and the remaining, buffaloes. Of the cattlestock slaughtered, nearly 60 percent were adult males and 30 percent adult females and the remaining calves. In the buffalo stock, 80 percent were adult males, 15 percent adult females and the rest calves.

Table 1: Reported number of animals slaughtered in urban and semi-urban areas of Kerala

(Numbers in thousands)

Year	Cattle			Buffalo			Total bovine		
	AM	AF	YS	AM	AF	YS	C	B	T
1964	63.5	39.4	6.4	23.0	6.7	2.9	109.4	32.7	142.1
1965	70.1	51.6	7.8	4.7	11.5	2.4	129.6	18.8	148.4
1966	78.2	53.6	7.8	29.5	12.6	3.6	139.6	45.8	185.5
1967	86.7	51.2	6.7	37.3	19.7	2.2	144.7	59.2	203.9
1968	89.3	54.8	8.3	44.0	21.0	2.8	152.4	92.8	245.3
1969	85.5	51.4	6.4	43.9	19.4	3.1	143.3	66.4	209.8
1970	83.3	48.5	6.2	34.8	4.8	2.8	138.1	42.4	180.4
1972	63.5	64.3	5.3	34.8	15.0	3.4	132.8	53.2	186.4
1973	77.3	48.8	4.5	36.5	18.9	2.4	130.5	57.5	188.1
1974	87.1	45.4	5.7	38.3	19.7	3.3	137.8	61.4	199.2
1976	115.3	47.2	8.5	47.1	17.7	3.8	171.0	68.6	239.7
1977	109.5	38.6	5.6	44.4	16.4	2.7	148.1	63.6	211.7

Source: Government of Kerala, Department of Animal Husbandary, Bulletin of Animal Husbandary Statistics, Trivandrum.

4 By mid-seventies the size of bovines slaughtered has shown a significant increase; the pattern has also changed: the number of bovines rose from 1.3 lakh in mid-fifties to 2.5 lakh by mid-seventies. But the proportions of cattle and buffaloes slaughtered remained almost unchanged. However, the proportion of adult males has shown a significant increase.

5 The above findings suffer, however, from severe limitations: (a) the number reported by the licensed slaughter houses excludes animals slaughtered in rural areas. In fact the total number of animals slaughtered in the State is likely to be several times larger. Besides, the statistics do not cover all the urban and semi-urban slaughter houses. For instance out of the 930 Panchayat centres in existence in the early seventies, slaughter house statistics were not available from nearly 50 percent of the centres; (b) for slaughter of animals within the premises of the slaughter houses, the butchers are under obligation to pay a small levy on each animal slaughtered for them. Though the levy itself is nominal, the butchers show a tendency to under-report the number of animals slaughtered to escape any resentment likely to be aroused in the public mind if actual numbers were reported. (c) The slaughter of small calves and diseased animals and cows in the reproductive age groups are officially prohibited, but are taking place to a certain extent.[6] For these reasons the reported number of slaughter of bovines in the slaughter houses would form only a small fraction of the actual number of animals slaughtered. Yet the upward trend in the data may be taken to be an indicator of the rapid increase in bovine slaughter taking place in the State. Though they may not give a correct picture of the patterns of slaughter, particularly because of the legal ban in existence on the slaughter of certain types of bovines.

we have attempted to prepare

6 Because of such limitations of the data, alternative estimates of bovine mortality using data from Livestock Censuses and on the population of bovines imported from other states into Kerala (see appendix). The estimated number of deaths in bovines are given in Table 2. The estimated number of deaths in bovines has two components: death due to (a) slaughter and (b) natural reasons like diseases. Currently no detailed information is available on the relative importance of these two processes on the rate of bovinestock adjustment. According to a survey conducted in the mid-sixties, about 15 percent of the bovine death was due to natural reasons and the rest due to slaughter.[7] It is also reported that, over 80 percent of the calf mortality was due to incidence of diseases. Our own investigations into the causes of bovine mortality in a couple of villages also lend support to the findings of the earlier survey.[8] Therefore, by excluding calf death from total bovine death, an approximate idea of the size of the bovine herd slaughtered might hopefully be obtained.

7. The estimated number of bovine death in early sixties (1961-62) was 8.7 lakhs. Out of this nearly 80 percent was cattle and the rest buffaloes. If we exclude the estimated number of calf deaths from the total death in bovines, the expected number of animals slaughtered comes to about 8 lakhs. The estimated number of deaths in bovines in the mid-seventies was about 14 lakhs. Out of this, nearly 1.5 lakh was due to calf mortality and the rest may be expected number of bovines slaughtered. Thus, within a decade, the total number of deaths of bovines in the state by slaughter may have increased by 65 percent. This finding is consistent with the trend observed in the number of bovines slaughtered in the state as reported by the slaughter house statistics.

Table 2: Estimated number of bovine deaths in Kerala (lakhs)

Year	Cattle	Buffalo	Total
1961	7.28	1.43	8.71
1966	8.32	1.58	9.90
1972	10.88	2.36	13.24
1977	11.60	2.50	14.10

8 The reliability of the above estimates may be verified by comparing them with those of the supply of hides and skins in Kerala. Usually one piece of hide or skin is obtained from one dead animal and hence the total number of hide and skins supplied in the state will be roughly equal to total number of animals died. Estimates of the supply of raw hide and skin in the state are available from a survey conducted in the mid-sixties by the Central Leather Research Institute.[9] According to this survey, 6.5 lakhs cattle hide and 1.8 lakh buffalo hides were supplied during the year in the state.[10] These figures indicate an estimated death of 8.3 lakhs bovines in Kerala. If we exclude the calf mortality from our estimate of 9.9 lakh deaths in the same year, the resulting figure tallies broadly with the survey estimates.

9 Estimates of the out turn of meat in the state is given in table 3. The estimates are arrived at by applying the yield rate of meat per standard cattle and buffalo suggested by the C.S.O for purposes of estimating meat output in the state.[11] The estimated outturn of meat in the early 'sixties was about 82.5 thousand tonnes. Out of this nearly 60 percent was obtained from cattle, another 21 percent from buffalo and the rest from other source like poultry, goat and pig. The total meat output

increased to 130 thousand tonnes by mid-seventies marking an increase of the order of 55 percent within a period of one and a half decades. The share of cattle meat and buffalo meat in the total meat output has been increasing at a more rapid rate, the share of buffalo meat output increasing faster rate than cattle meat.[12]

Table 3: Estimated Meat Output in Kerala (000 tone)

Year	Cattle	Buffalo	Other meat	Total
1961	52.2	17.37	5.90	82.5
1966	57.1	18.00	7.71	90.5
1972	77.7	27.40	8.77	12.5
1977	88.7	31.50	9.20	129.4

Note: Output of cattle meat and buffalo meat are obtained by applying the standard yield rates of meat per cattle and buffalo used by the Central Statistical Organisation to the estimated number of deaths in these spices converted into adult equivalent units. The calf deaths are not included in the meat output estimate. The youngstock is converted into adult equivalent units by taking one youngstock to be equal to half adult stock. The following are the C.S.O. rates of meat output; Cattle 102 k, buffalo 156 k. The output of other meats are the official estimates of these items.

Cause of Slaughter

10 We have discussed elsewhere the major causes for the rise in the scale of bovine slaughter.[13] They include the following:

11 Fish is the major source of animal protein in Kerala. As a consequence of the rising demand and falling per capita availability, fish prices have been continuously rising.[14] This factor may have introduced a shift in consumption pattern of animal protein from fishery sources to those based on land namely meat, milk and egg. In the land-based animal protein basket, the major source of supply is bovines, in the form of milk and meat. Other type of livestock supplies form only a very small fraction of the total supply of animal protein and their prices also have been rising at a rapid rate. Since protein from bovine source has become cheaper than that from fish and other livestock sources, the consumption pattern of animal protein may have shifted more to bovine sources. These factors, combined with the growth in population and income, have led to a high rate of growth in the demand for beef and milk.

12 The growth in the demand for milk has raised milk prices at a rate much more rapid than input prices resulting in better feeding and management of milch animals. Efforts made during the last two decades to raise the genetic potential of milch animals through cross-breeding programmes have resulted in the addition of large numbers of new herds of cross-bred animals in the milch animal population.[15] Thus the better feeding and breeding facilities have resulted in rise in the productivity of milch animals reckoned in terms of calves and milk.[16] The natural rate of increase in the milch animal population has been rising; the total milk production has also been on the increase because of these developments.

At the same time, since the supply of feed in the state has been limited the intense efforts for augmenting milk production resulted in intensification of the pressure on available feed resources for milk production and for rearing draft animals. In this process, the choice is seen to have fallen on rearing more milch animals by reducing the size of the draft animal stock, by increasing the rate of utilization of draft animals as well as substituting human labour for draft power in land preparation. The rise in beef price as a result of the growth in demand has also contributed to the reduction in the draft animal stock. The rise in beef price led to increase in the price of slaughter animals and this in turn stimulated the culling of animals (including surplus draft animal stock) at a rapid rate thereby raising the overall rate of bovine slaughter.

Incidence of Slaughter

13 What are the effects of the rise in the incidence of slaughter on the size and composition of bovine stock? To understand this it is essential to examine the pattern of survival (or mortality) of bovines by age and its trend over time.[18] The method of estimation of the survival rates is given in appendix 1.

14 The over-all bovine mortality rate in Kerala increased from about 22 percent in the early sixties to 30 percent by mid-seventies. The corresponding increases in cattle and buffalo mortality rates were from 21 percent to 28.7 percent, from 23 percent to 34.5 percent respectively. (See Table 1 in the appendix). These estimates are broadly consistent with the mortality rate of bovines reported in an earlier study.[19] According to this study the bovine mortality rates in Kerala were 21 percent for cattle and 33 percent for buffaloes. These rates are much higher than

the corresponding figures for the country as a whole, about 10 percent for cattle and 17 percent for buffaloes.

15 Estimates of calf mortality rates are given in Table 2 in the appendix. The estimated number of cattle calves increased from 5.7 lakhs in the early sixties to 8 lakhs by mid-seventies. The estimated number of calf deaths increased from 0.4 lakh to 0.8 lakh during this period, due mainly to the increase in the number of deaths of male calves. Almost all the female calves born have survived the (0-1) year, (calf age group) and joined the youngstock in (1-3) year age group. But in the case of male calves a small proportion (about 16 percent in early 'sixties) did not survive the calf age group. It is also to be noted that in the last one and a half decades, especially in the last quenquenium, the survival rate of male calves has improved significantly. In the case of buffaloes, the number of births has increased from 0.5 lakh in the early 'sixties to nearly 7 lakhs by mid-seventies. About 60 percent of the calves born is seen to survive to the higher age groups. Between males and females, no significant variations in the pattern of survival are observed.

16 In order to estimate the survival rate of youngstock cattle and buffaloes, we have used their respective population size in the (0-1) and (1-3) age groups. The estimated number of death in youngstock and their survival rates are given in Table 3 in the appendix. In the early 'sixties about 1.9 lakh male youngstock and 1.5 lakh female youngstock cattle died in the state. The number of deaths in male youngstock has steadily increased over the years and by mid seventies it was about 2.4 lakhs. The number of death in female youngstock increased from 1.5 lakh in early sixties to 1.8 lakh by mid-seventies. Estimates of the survival

rates of male youngstock showed a continuous decline over the years. But in the case of females the survival rate has increased significantly. For buffaloes the estimated number of death in youngstock in early sixties was about 0.20 lakh and it marginally increased to 0.3 lakh by mid-seventies. The survival rates of male and female youngstock do not show any significant change over the years.

17 Since the mortality rates of adult cattle and buffaloes vary significantly with the rise in age, it is not possible to use the census data for estimating the mortality rate of adult stock. The only possible method to get some idea of the change in mortality rate of the adult stock is to compare the average life span of adult animals over the years. This can be computed from the single year age distribution of cattle and buffalo population for the mid-sixties and mid-seventies from two rounds of the National Sample Survey.[20] The single year age distribution data for adult cattle in the mid-sixties show a heavy concentration in the 5 to 11 age group. But by mid-seventies, the concentration of animals in the different age groups is seen to have shifted significantly to the lower age groups, the range being 5 to 8 years. The average life span of adult females declined from 8.5 years to 6.3 years by mid-seventies; in other words there was a downward shift of about 35 percent in the life span of adult female indicating an increase in the rate of their culling. In the case of adult males the concentration of animals was mainly in the age group 5 to 11 with an average life span of 9.8 years during mid-sixties and 8.0 years by mid-seventies.

Table 4: Percentage distribution of adult male and female cattle in different age groups

Age in completed Years	Percentage distribution of Female Cattle		Percentage distribution of Male Cattle	
	1966	1976	1966	1976
2	-	1.04	-	-
3	-	12.7	-	-
4	2.0	15.0	8.0	12.0
5	9.0	17.6	16.5	22.5
6	19.8	15.6	19.8	26.8
7	23.8	12.5	16.2	18.8
8	16.3	11.2	14.6	7.8
9	9.3	4.6	13.7	4.6
10	7.5	4.3	4.3	7.7
11	6.3	0.9	0.8	2.6
12 and above	6.0	4.56	6.10	3.20

Source: 1. Government of India, Department of Statistics, National Sample Survey (a) Report No.111, Post Census Sample Check on Livestock Numbers; (b) Report No.281/3, 30th round (1975-76) Report on Livestock Number and Products. The data is obtained from the State Sample Tabulation.

18 How does the trend in the pattern of survival rates affect the growth rate of cattle population? In the case of females, the increase in survival rates of youngstock and reduction in the average life span of adult animals would result in a positive rate of growth in adult category if the youngstock surviving is sufficient to meet both the replacement and the additional demands for the adult females. An analysis of the trend in the female young and adultstock cattle in the last two decades showed

Table 5: Trend in Bovine Population (1951-1977)

(Numbers in lakhs)

	1951	1956	1961	1966	1972	1977	Percentage change				
							1956/51	1961/56	1966/61	1972/66	1977/66
Adult Male											
Cattle	6.0	6.0	5.7	5.2	3.9	3.7	0	-5.0	-8.7	-33.3	-5.10
Buffalo	2.5	2.6	2.8	2.5	2.2	2.2	+4.0	-7.6	-10.7	-12.0	0
Total	8.5	8.6	8.5	7.7	6.1	5.9	1.1	-1.1	-9.4	-14.1	-3.2
Adult Female											
Cattle	8.3	9.9	11.3	12.1	13.0	13.7	19.28	+14.1	7.0	7.4	5.3
Buffalo	1.4	1.4	1.4	1.4	1.6	1.6	0	-	-	14.0	0
Total	9.7	11.3	12.7	13.5	14.6	15.3	17.58	12.3	6.3	8.1	4.7
Youngstock											
Cattle	7.7	9.1	9.8	11.2	11.6	12.6	26.3	7.6	14.2	12.5	8.6
Buffalo	0.50	0.9	0.7	0.8	1.0	0.8	80.0	-20.0	10.0	20.0	-20.0
Total	7.70	10.0	10.5	12.0	12.6	13.4	29.60	5.0	14.2	5.0	6.2
Total bovine											
Cattle	21.50	25.1	26.8	28.5	28.5	16.7	16.7	6.7	6.3	0	5.4
Buffalo	4.4	4.8	4.8	4.7	4.7	4.5	9.0	0	-2.0	0	-3.5
Total	25.9	29.9	31.6	33.2	33.3	34.0	15.4	+5.6	+5.3	0	4.80

Source: Livestock Censuses

significant increase in their population. The survival rate of youngstock males has been, on the other hand, declining and the average life span of adult males has fallen, indicating a negative rate of growth in their population. This is consistent with the observed trends in male young and adult stock cattle population. (See Table 5)

19 More insight into the effect of the survival rates of male and female population on their size and composition can be obtained by examining the trend in the sex ratios in different age groups. Analysis of the trend in the sex ratio of cattle and buffalo populations in the last two decades showed the following: (a) the sex ratio of cattle in the age group (0-1) declined slightly in the fifties, but it has been on the increase from the sixties; (b) the sex ratio of youngstock and adult stock cattle has been declining throughout the last two decades. In the case of buffaloes the sex ratio has been declining over all the age groups.

Table 6: Trend in sex ratio of cattle and buffalo population in Kerala (1951-77)

Cattle	1951	1956	1961	1966	1972	1977
Sex ratio						
0-1	NA	52	75	69	77	86
1-3	NA	56	51	41	33	23
3+	72	52	48	42	30	27
Buffalo						
Sex ratio						
0-1	NA	98	95	83	79	74
1-3	NA	147	142	123	67	93
3+	178	238	236	188	163	137

Source: Livestock Censuses

Note: Sex ratio is defined as the number of males per 100 females

20 What do the trend in survival rate as well as the change in size and sex ratio of cattle population indicate? The rise in survival rate of youngstock female, the reduction in the average life span of the adult stock and the increase in the size of the population clearly show that the incidence of slaughter has not affected the growth of the population. In fact, it only shows the culling of the adult female at a slightly lower age than before and replacing the off-take from the adult female stock by an increase in the survival rate of youngstock female. The incidence of slaughter on the adult female is seen to be happening at the age beyond which the productivity of animals begins to fall.[21] The foregoing discussion shows that the existence of an adjustment mechanism of selective slaughter has really helped to weed out the low-productive and unproductive females and to fill their place by healthy and more productive stock. This process has given a wider choice for selecting the youngstock best suited to reach adulthood and resulted in maximisation of both meat and milk production. In the case of male cattle, the incidence of slaughter has resulted in reduction in the average life span of not only of adultstock but also in the survival rate of youngstock and in the total adult stock population. However the rise in the number of male animals slaughtered, has resulted in better feeding and management of the male calves and in their survival rates to the higher age group (1 to 3 years). But once they reach the youngstock age group they are culled for meat. Thus the existence of slaughter of male animals has resulted in the reduction of wastage of young male calves due to malnutrition and diseases, and has contributed to the rise in meat output. It is also to be mentioned that the trend in the sex ratio of cattle also indicates systematic incidence of slaughter of males in the higher age groups.

Ban on Slaughter

21 What will happen if cattle slaughter is banned in the state? In order to be able to offer an answer, we have to examine the likely impact of such a ban on the (a) size and quality of the cattle stock (b) livestock economy of other states (c) different segments of the population in the state.

22 A ban on cow slaughter will result obviously, in a rise in the size of the young and adult stock. This is mainly because, in the absence of a mechanism for the elimination of unproductive animals, they will be weeded out only by natural death. Since the state is already very poor in the production of livestock feeds, a rise in the size of the stock will result in a decline in the productivity of animals as a result of the deterioration in the level of feeding. Besides this, the survival of unproductive female cows and under-fed youngstock will result in the multiplication of the number of unproductive animals in the state. In other words this implies that all the attempts made so far for improving the genetic potential of animals through upgrading and cross-breeding and the favourable impact they have had on the livestock economy of the State will disappear. What remains at the end will be large hordes of ill fed, unhealthy and unproductive bovine population.

23 As we have discussed elsewhere, Kerala has an open livestock economy with large-scale migration of bovine into the state from the neighbouring state of Tamil Nadu.[22] The available evidence on the migration of bovines into Kerala showed rapid rise in the rate of migration in the last one decade. In 1976-77 about 6 lakhs bovines were imported from Tamil Nadu; out of this 22 percent was draft animals, nearly 25 percent milch animals and the rest slaughter animals.[23] About 60 percent of the bovines imported

was cattle and the rest buffaloes. Studies on the movement of the imported animals in the state have shown that about half the these animal herds moved to the farm and rest to the slaughter houses. The flow of animals a decade ago was only about 3 lakhs and the near-doubling of the import of animals is obviously due to the growth in demand for slaughter animals and for replacement of draft and milch animals, especially buffaloes. So far there is no evidence which suggests that this inflow had adversely affected the livestock sector of Tamil Nadu. On the other hand it might have only helped Tamil Nadu in disposing of her surplus animal stock thereby reducing the pressure of animals on land. Besid s all this, the hide and skin from the slaughtered animals are exported to Tamil Nadu for catering to its demand for leather and leather-based industries. Thus Tamil Nadu exports her surplus animals to Kerala and Kerala supplies raw hide and skins to Tamil Nadu and in this processes both the states are mutually benefiting. A ban on cow slaughter in Kerala or a ban on the export of animals from Tamil Nadu will adversely affect the livestock economy of both the states, besides upsetting the existence of a wide range of industries in Tamil Nadu.

24. Again a ban on cow slaughter will adversely affect the relatively poor segments of the population more than the rich.[24] At the prevailing pattern of ownership and distribution of milch animals in Kerala, it is the poor sections of the rural households operating farms below 1 acre in size are the core of the milk producing sector. They own about 80 percent of the milch animals and contribute to more than 75 percent of the marketed surplus of milk. Hence the efforts to intensify milk production activities in the state will help the poor more than the rich. But the retardation of these efforts by introducing ban on cow slaughter will

result in defeating the ongoing cattle development projects and hence will affect the poor.

25 Traditionally beef is consumed by the Christian, Muslim, backward castes among Hindus and the scheduled caste and scheduled tribe population in the state. Also in this state, there have been no religious or cultural taboos attached to the slaughter of cows. With the rise in the cost of protein from fish and other sources and the relative cheapness of beef, caste attachments to consumption of beef have disappeared. Today beef is consumed by a good proportion of the non-vegetarian population- irrespective of their caste or community-who cannot afford more costly varieties of fish or mutton or poultry meat. Thus the ban on cow slaughter will result in denying the small amounts of animal protein consumed at present by the relatively weaker sections of the non-vegetarian population in the state.

Conclusion

26 To sum up: cattle slaughter in Kerala has resulted in the raising of both meat and milk output. A ban on slaughter of cattle, especially cows, will adversely affect the ongoing livestock development projects and the weaker sections of the population. Why is it then that the saint of Poonar and his followers are agitating for a total legal ban on cow slaughter in Kerala? The answer seems simple: either they are innocent of facts or they are not used to the understanding of facts. It is worth remembering in this context that there had been an agitation, decades ago, for a ban on cow slaughter in Travancore based on economic reasoning.[25] In the early part of this century, there has been considerable rise in milk prices in Travancore caused by the rapid growth in demand for milk following rapid

rates of growth in human population. In those days, the supply of milk did not respond to its demand. Some people attributed this failure to the indiscriminate slaughter of milch animals and hence pleaded for a ban on cow slaughter. But strong counter-arguments also came up. The issue was debated intensively in the press, the platform as well as in the Travancore Legislature Council. A resolution on 'Prohibition of cow slaughter' was moved in the assembly in November 1923, but was withdrawn in the face of fierce opposition from the majority of the members. The objective and informed manner in which the issue was discussed is evident from the following extract from the speech of one of the members of the Assembly.[26]

"People who know the habits and customs of the country are very well aware that milch cows are not at all slaughtered. It is only the barren cows that are being slaughtered and cows slaughtered form only a microscopic minority of the total number of cows in existence. The slaughter of these cows cannot at all account for the scarcity of milk. It is more due to the unscientific way of rearing cows and the indifferent feeding arrangements in vogue.

Again it is economically unsound to kill a milch cow. A milch cow may fetch anything between Rs.20 and Rs.150; a butcher will not at all find it worthwhile to buy and slaughter a milch cow on such a high price. That being the case, it is not at all reasonable for us to argue that milch cows are being slaughtered in any large number. The slaughter cows, I am positive, is not one of the reasons for the scarcity of milk in the country..... I have often thought that it would be more merciful to slaughter some of the old cows which have long passed their period of service. Owing to sentimental consideration I find that people are

not at all prepared to sell them for butchers. In such cases persons like Hooge Werf have their pension for maintaining such cows. There are other people who have not even a pension to fall back upon".

Even today the above arguments are valid. It is a pity that many of the present day politicians and the Acharyas are not prepared even to look into the plain facts relating to the functioning of our agrarian sector; instead they are busy setting trends of anti-development in the name of development.

Appendix

Estimates of mortality rates of cattle and buffaloes are arrived at by using the following method.

1 Over-all rates of bovine Mortality

If bopo is the bovine population reported by the Livestock Census in the year bo and if C1 and I are the number of animals added to the population bopo within the year bo+1 by births and imports respectively, then the expected population (E1) at the end of the year bo+1 will be (boPo+C1+I1), if there are no deaths of animals in the year bo+1. Let A1 be the actual population at the end of the year bo+1, as obtained by the interpolation of the Census data, then the estimated number of deaths of animals in the State will be given by (E1-A1). The approximate number of births of cows and she-buffaloes each year will be given by the number of male or female calves or the number of cows/she-buffaloes in milk whichever is the highest. Data pertaining to the import of animals are obtained from the Rinderpest Eradication unit of the Animal Husbandary Department. The estimated death rates of cattle and buffaloes are given below:

Table 1 Estimated death rate of Cattle in Kerala

Year	Cattle	Buffalo	Total Bovine
1961	21.0	23.0	21.5
1966	23.0	25.4	22.9
1972	27.6	33.7	28.4
1977	28.7	34.5	30.4

Note: Bovine mortality rates are given in percentage of animals died to total bovine population.

2 Calf Mortality

Calf mortality rates are estimated by substracting the number of calves surviving at the end of a year from the number of calves born. The results are given in Table 2.

Table 2 Estimated number of calves born (lakh) and calf mortality rates of cattle and buffaloes in Kerala

Year	Estimated number of calves born (lakh)		Calf mortality rates	
	Cattle	Buffalo	Cattle	Buffalo
1961	5.68	0.53	8.0	22.0
1966	6.62	0.56	15.1	19.0
1972	7.78	0.75	16.5	35.0
1977	8.12	0.82	10.1	32.2

Note: Calf mortality rate is expressed as percentage of calves died to total number of calves born.

3 Youngstock Mortality

The youngstock mortality rates are obtained by using the following formula: $R=r(1+g)$ where R is the survival rate of youngstock cattle and g is the growth rate of the calf population. The formula is obtained by using the following assumptions: (a) the annual number of births remain unchanged in consecutive years (b) the annual survival rate for the youngstock remains the same in consecutive years (c) there is migration of cattle into Kerala from other states, but no cattle movement takes place from the State to outside the State. Under these assumptions, if x is the size of the (0-1) population and y the size of the (1-2) population and $1/b$ is the (1-3) population migrated to the State, then

$x_1 r + x_2 r^2 = y - y_b$, where r is the survival rate of (1-3) population. But the number of births in consecutive years may or may not be equal and hence the value of r will be different for different years. The new survival rate R for different years will be given by $R = r(1+g)$.

Table 3: Trend in survival rate of youngstock

Year	Number of death in young stock (lakh)				Survival rate			
	Cattle		Buffalo		Cattle		Buffalo	
	Male	Female	Male	Female	Male	Female	Male	Female
1961	1.9	1.5	0.13	0.07	48	44	55.0	69.0
1966	1.8	1.7	0.07	0.08	47	43	78.0	70.0
1972	1.9	2.0	0.12	0.14	41	54	64.0	65.0
1977	2.4	1.8	0.14	0.18	32	58	66.0	67.0

NOTES

1. This has been publicly stated several times by the Chief Ministers of Kerala and West Bengal in their Press Conferences. Besides in a written reply given in the State Legislature, the Chief Minister of Kerala expressed clearly, the inability of his government to legalise ban on cow slaughter in the state. The Communist Party of India (Marxist) which is the major Partner in the West Bengal Ministry, in their last Party Plenum passed a resolution opposing legal ban on cow slaughter in these states.

2. Recently a team of the Gandhi Peace Foundation headed

by R.R. Divakar toured different parts of the state trying to mobilise public opinion. But they received a very cold reception in all the places. They also submitted a memorandum to the Chief Minister.

3. In the last few months, almost every day, innumerable number of small write ups (especially in the letter to the editor columns) articles, etc. appeared in most of the local news papers reflecting public sentiment. Some news papers even wrote editorials; others published special issues debating the problem, the general opinion expressed in these writings being that the agitation of the Acharya for a legal ban on cow slaughter is ridiculous. A bibliography of these writings is available with the author of this article.

4. There are different theories on the origin and evolution of the sacred cow concept in India. There are also two competing schools of thought on the influence that the Hindu religion has had on the maintenance of a large stock of cattle population in the country. These issues are being debated intensively both in India and abroad. It is a pity that in a country where the state is incapable of protecting the interests of millions of poor people and even cannot provide them minimum subsistence, the protection of the cow has become a constitutional burden on the people and the state. For an excellent summary of the issues on the origin of the sacred cow, see Fedric J.Simoons, Questions in the Sacred Cow Controversy Current Anthropology Vol.20, No.3, September 1979.

5. Data pertaining to the number of animals slaughtered in the licensed slaughter houses in the state are collected by the statistical unit of the Animal Husbandary Department. The monthly data on slaughter are published regularly in the Bulletin of Animal Husbandary Statistics.

6. According to the existing laws on slaughter of animals in Kerala, the butchering of productive animals and young calves is legally prohibited. The definition of productive animal includes bullocks suitable for traction, cows in milk and dry cows which are likely to become reproductive with proper breeding. The slaughter of both male and female calves is prohibited. But, the fact remains that all slaughter of old bullocks and cows and young male stock do not enter the official slaughter statistics.

7. See for details: Institute of Agricultural Research Statistics (ICAR) Estimation of Milk Production and other bovine and goat Practices in Kerala, New Delhi (undated)

8. The findings of this survey are reported in the author's Ph.D dissertation 'Livestock Holdings in Kerala - An Analysis of factors governing Demand and Supply" being submitted to the University of Kerala.

9. See: Control Leather Research Institute, Report of a Survey on Leather and Leather-based Industries in Kerala, Madras, 1976.

10. Ibid. p.12

11. The average yield of meat from a standard animal is, as per

the C.S.O estimate, about 102 kg for cattle and 156 kg for buffalo. Since the standard animal is expressed in adult units, we converted the number of deaths in youngstock into their adult stock equivalent units by assuming one youngstock to be equal to half the adult stock. The out turn of meat from other livestock sources is taken from the official estimates on the out turn of meat in the state.

12. The official estimate of bovine meat output suffers from the following limitations: (a) they assume constant mortality rates for animals over time which is not true, (b) the imported component of the animal stock is seen to be usually underestimated for the purpose of estimating meat output. These limitations have resulted in a considerable degree of underestimation of the quantum of meat output.

13. See: Nair, K.K. Milk production in Kerala - An Analysis of Past Trend and Future Prospects, working paper Number 76, Centre for Development Studies, Trivandrum, December 1978.

14. For a detailed discussion of the growth in demand for and supply of fish in Kerala, see: John Kurien, Towards An Understanding of the Fish Economy of Kerala State, A Preliminary Study of the Current situation and Trends in Organisation, Technology, Production and Distribution of Incomes, Working Paper No.62, Centre for Development Studies, Trivandrum 1978.

15. According to the latest Livestock Census (1977) out of the 14 lakh milch cows in Kerala about 60 percent belonged to the improved and the rest to the Desi breeds. The cross-bred

population, as per our estimates, comes to about 1.5 lakh. The improvement in genetic potential of cows in Kerala has been a major factor for the significant rise in milk production.

16. The productivity of cows in terms of milk has increased by 80 percent within the past one and a half decades. See for details: Milk Production in Kerala op.cit.

17. See for details: Nair, N.K. 'Size and Utilisation of Draft Animals in Kerala', Indian Journal of Agricultural Economics, No.3 October-December 1977.

18. The only official source of statistics on bovine mortality in Kerala is the IARS survey mentioned earlier. This survey, conducted in the mid-sixties, gives a mortality rate of 5 percent for cattle and 7 percent for buffaloes. These data obtained from the sample survey have however, serious limitations. In Kerala livestock trade is a well organised business involving large number of markets scattered over all the regions in the state. A good proportion of animals moved into these markets are sent to the slaughter houses located in urban and semi-urban areas and the sample survey technique may not capture the mortality rate of animals due to slaughter taking place in such slaughter houses. Again, only rarely are animals butchered in individual households. The slaughter and distribution of meat in villages is usually done by professional butchers and the animals slaughtered by them would not enter into the figures reported in the sample survey.

19. See Export Potential of India's Leather and Leather Goods Industries, Central Leather Research Institute and Gokhale Institute of Economics and Politics, 1964.

20. The single year age-distribution data for the mid-sixties are obtained from the post-Census sample survey on Livestock Numbers. The corresponding data for the mid-seventies are taken from the 30th round of the National Sample Survey. I am grateful to the State Bureau of Economics and Statistics for supplying these unpublished data.

21. Analysis of the relation between age and yield rates of milch animals gives a curvilinear relation between the two variables. There is also significant concentration of milch animals in the first half of the curve which indicates systematic culling of the stock once their productivity begins to decline.

22. This aspect of the livestock economy of Kerala is discussed by the author in detail in an unpublished paper "Livestock Trade in Kerala - An Analysis with Special Reference to Inter-state Cattle Trade", Centre for Development Studies, Trivandrum.

23. Monthly data on the import of animals are collected by the Animal Husbandary Department and published regularly in the Bulletin of Animal Husbandary Statistics.

24. See for details: Milk Production in Kerala, op. cit.

25. See: Travancore Legislative Council Proceedings, Vol.MP154 ff.

26. The resolution was moved by Sri A Govinda Menon.

The extract quoted in this paper is from the speech by Mammen Mappilla in the Council opposing the motion.

27. Travancore Legislative Council Proceedings, Vol.IV, op.cit.