

CHAPTER - VI

CHAPTER VI

AN AGGREGATIVE ANALYSIS

An aggregative look into the situation regarding technology adoption in agriculture vis-a-vis the different socio-cultural variables has much significance in the overall analysis of the study. That is to say, a combination of the results obtained in regard to the five individual blocks to derive a composite picture for the State as a whole has been attempted. Although the study is not based on an elaborate State-wise sample survey, the composite results based on block-wise data should throw up some useful macro-information regarding the relation between technology adoption in agriculture and the socio-cultural variables in the State of West Bengal.

The following tables contain the relevant aggregative data regarding technology adoption and the socio-cultural characteristics of all the sample farmers which number 118.

Technology Adoption

HYV Rice :

HYV rice is considered to be an important indicator for technology adoption.

T A B L E 43

AREA UNDER HYV RICE, ALL BLOCKS

All Blocks	Area	Under	HYV	Rice	Total
	Above 50% area	25% - 50% area	Upto 25% area	Nil	
Combined	48/118 (40.6%)	16/118 (13.6%)	12/118 (10.2%)	42/118 (35.6%)	76/118 (64.4%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

The table brings out that in the five blocks as a whole about two-thirds of the farmers cultivate high-yielding varieties of rice. The extent of adoption of HYV rice among the farmers devoting more than 50% of their area to HYV rice is about two-fifths. As regards the second group of farmers, namely, those who devote 25% - 50% of their acreage to HYV rice, the percentage is 13.6. Considering those who devote upto 25% of their sown area to high yielding rice, it is observed that the percentage of HYV growers is less, only about 10% farmers belong to this group. The percentage of non-HYV rice growers is also notable, for they are constituted more than one-third of the total number of farmers.

HYV Potato, Mustard, and Jute :

As regards the other major crops of the five blocks, namely, potato, jute and mustard, consideration are made only (i) HYV-growers, (ii) non-HYV growers and (iii) non-growers, for reasons mentioned earlier.

AREA UNDER HYV RICE ALL BLOCKS

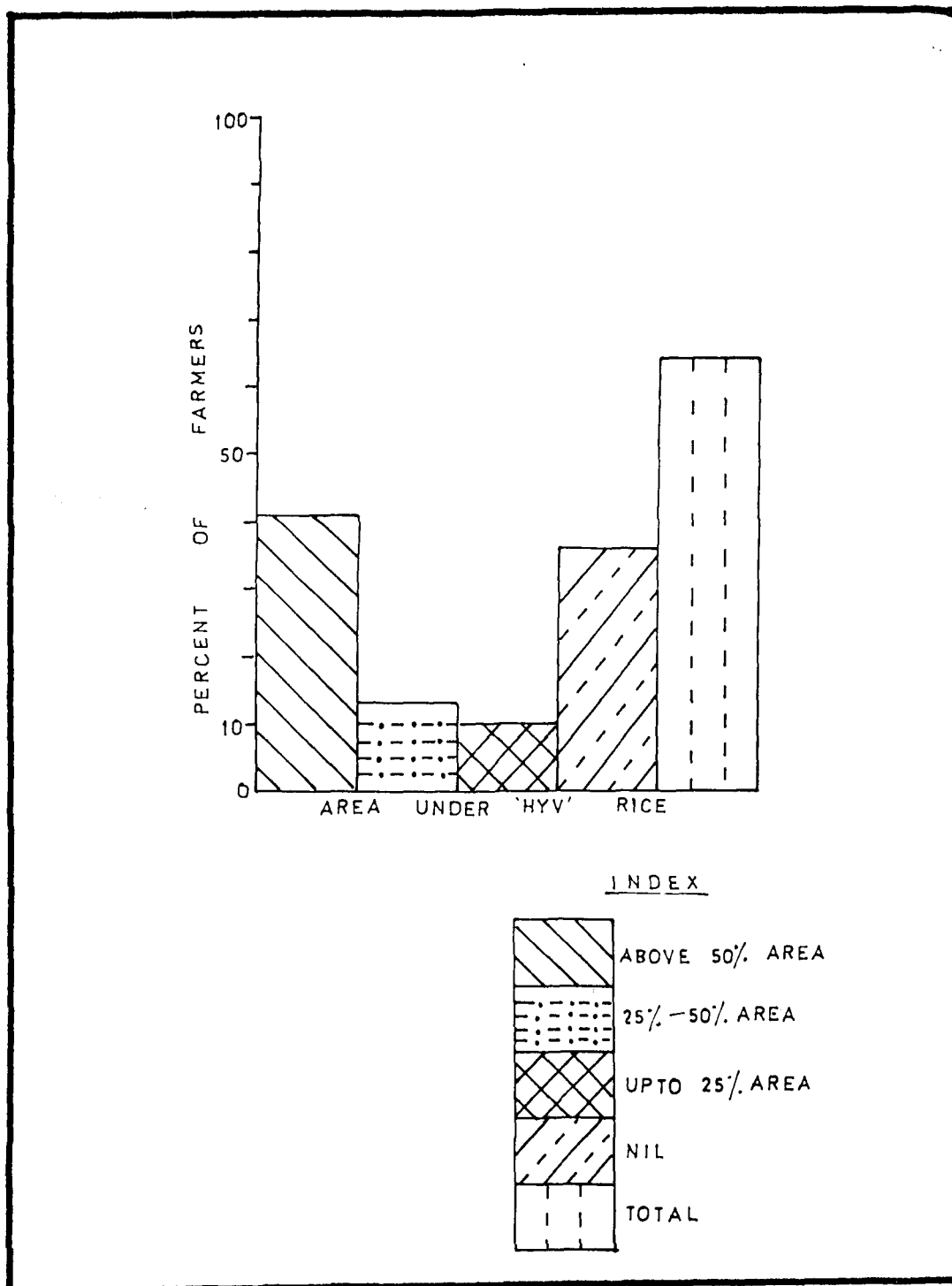


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AREA UNDER HYV OTHER THAN RICE, ALL BLOCKS

All Blocks	HYV Potato ^a		HYV Mustard ^b		HYV Jute ^c		Non-Grower
	HYV Grower	Non-HYV Grower	HYV Grower	Non-HYV Grower	HYV Grower	Non-HYV Grower	
Combined	19/19 (100%)	-	15/40 (37.5%)	16/40 (40%)	5/42 (11.9%)	24/42 (57.1%)	13/42 (31%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

(a) Jamalpur (b) Jamalpur and Onda (c) Chapra and Maynaguri.

In the case of potato, which has considered as an important crop only in the Jamalpur block it is seen that 100% of the total number of cultivators raise this crop. It is interesting to note that all of them are growers of high-yielding varieties of potato.

As regards mustard which is grown in the Jamalpur(Burdwan) and Onda (Bankura) blocks as an important crops it is observed that only 37.5% of the total farmers cultivate high-yielding varieties of the commodity, whereas the percent of non-HYV mustard growers is 40. Of the total farmers only 22.5% are non-growers of mustard.

Taking a look at the jute cultivators, who belong only to the Chapra and Maynaguri blocks, it is observed that only 12% of sample farmers are HYV growers. Non HYV jute growers are in a majority-57% of them resorting to traditional varieties. The number of non jute growers is also high-about one third of the total number of farmers in the Chapra and Maynaguri blocks where the crop is grown.

Use of chemical fertilisers provides an interesting picture.

T A B L E 45

USE OF CHEMICAL FERTILIZERS, ALL BLOCKS

All Blocks	N		P		K		Nil Total								
	31kg and above/ acre	21 - 30 kg/acre	Upto 20kg/ acre	Nil	Total 26kg and above/ acre	15 - 25 kg/acre		Upto 15kg/ acre	12.5- 25kg/ acre	Upto 12.5kg/ acre					
Combined	61/ 118 51.7%	16/ 118 13.6%	32/ 118 27.1%	9/ 118 7.6%	109/ 118 92.4%	50/ 118 42.4%	19/ 118 16.1%	25/ 118 21.2%	24/ 118 20.3%	94/ 118 79.7%	39/ 118 33%	25/ 118 21.2%	23/ 118 19.4%	31/ 118 26.2%	87/ 118 73.7%

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

It is seen from the table, that from an aggregative viewpoint the percentage of nitrogenous fertilizer(N) users is 92 that is, only 8% of the growers do not use them at all. The modal level of N - fertilizer use is 31 kg. and above per acre, and more than 50% of the growers in all the blocks taken together report this level of use. More than one-fourth of the cultivators in the five blocks report

USE OF N FERTILIZER ALL BLOCKS

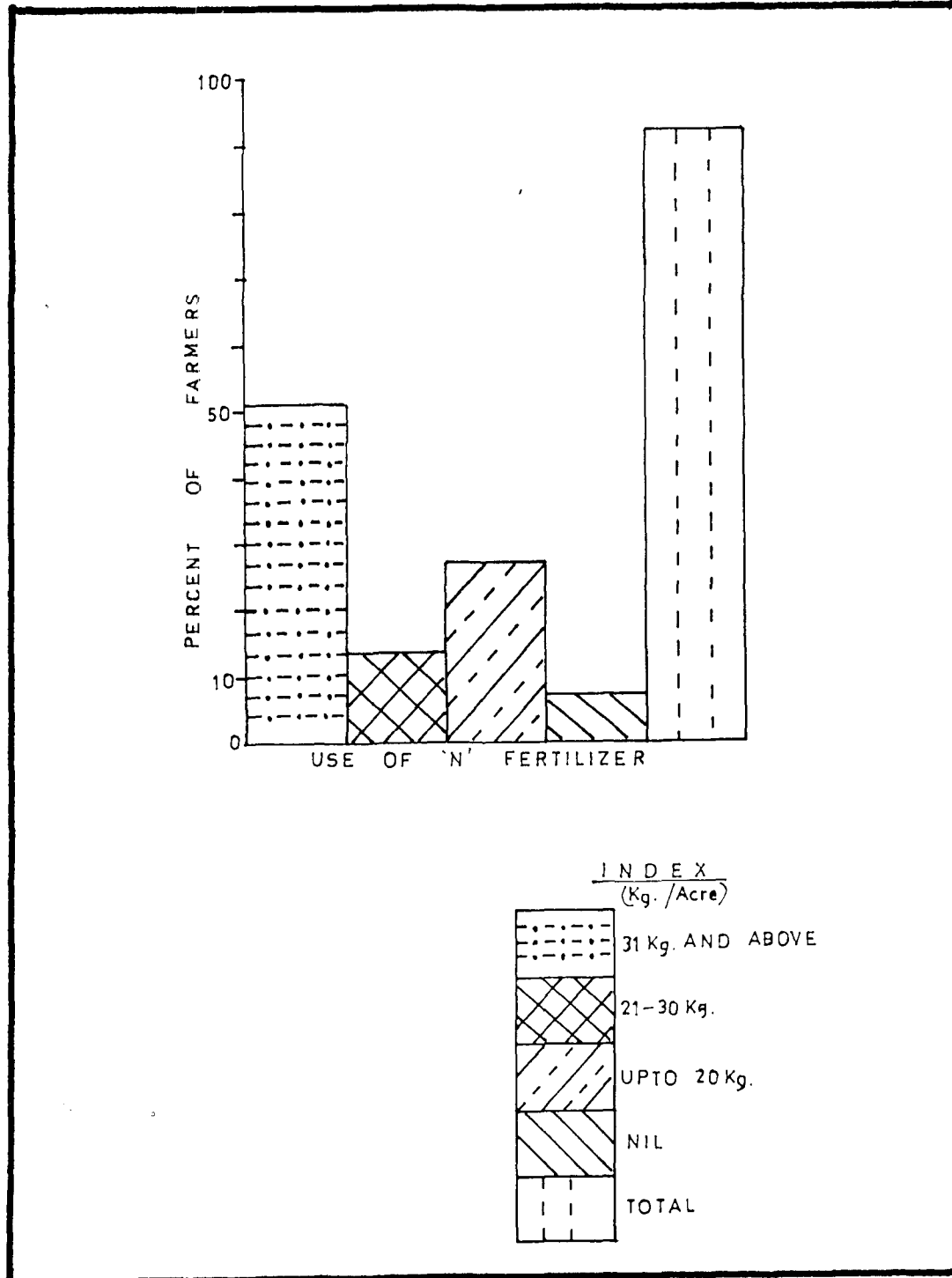


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USE OF P FERTILIZER ALL BLOCKS

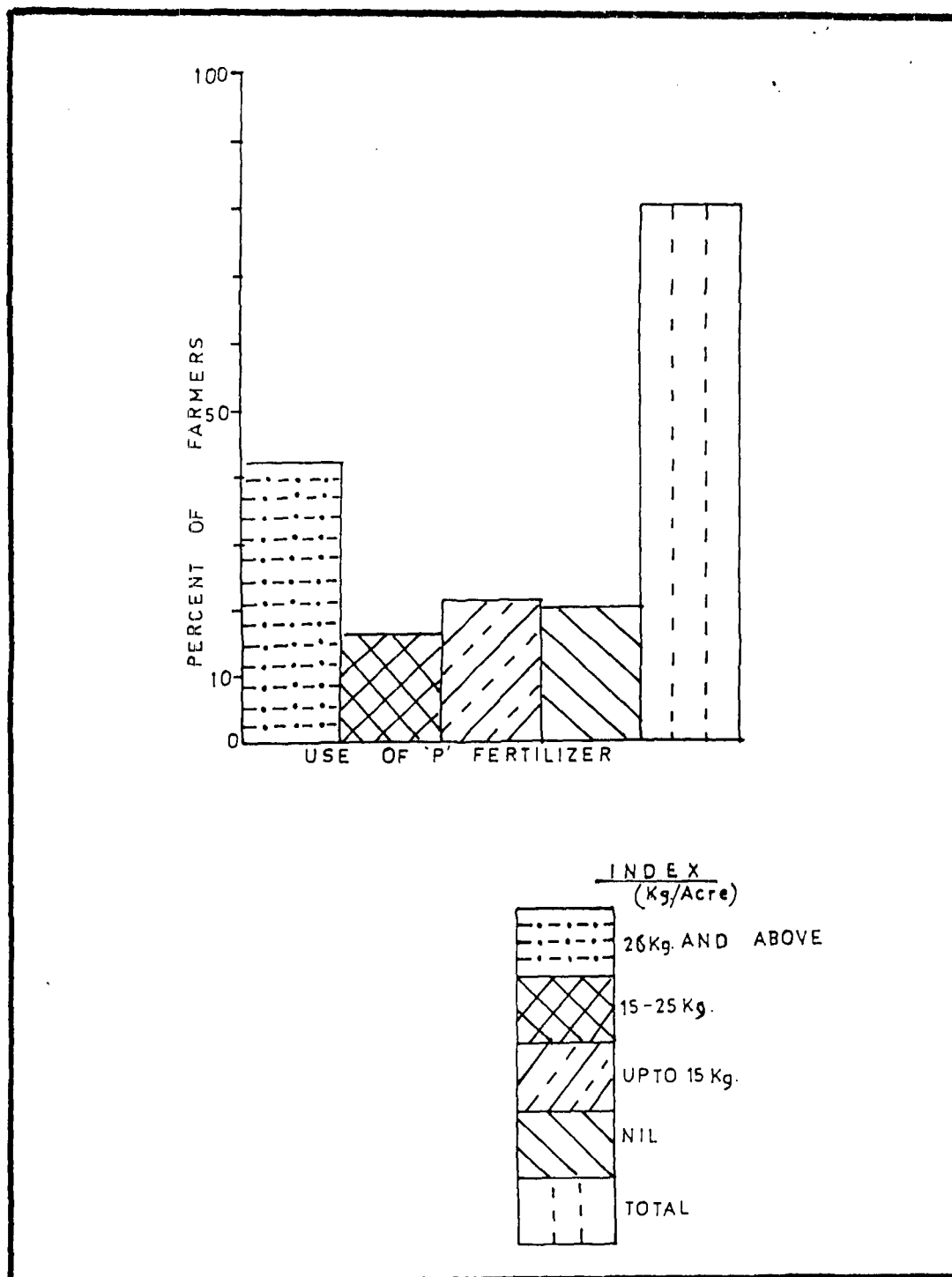


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USE OF K FERTILIZER ALL BLOCKS

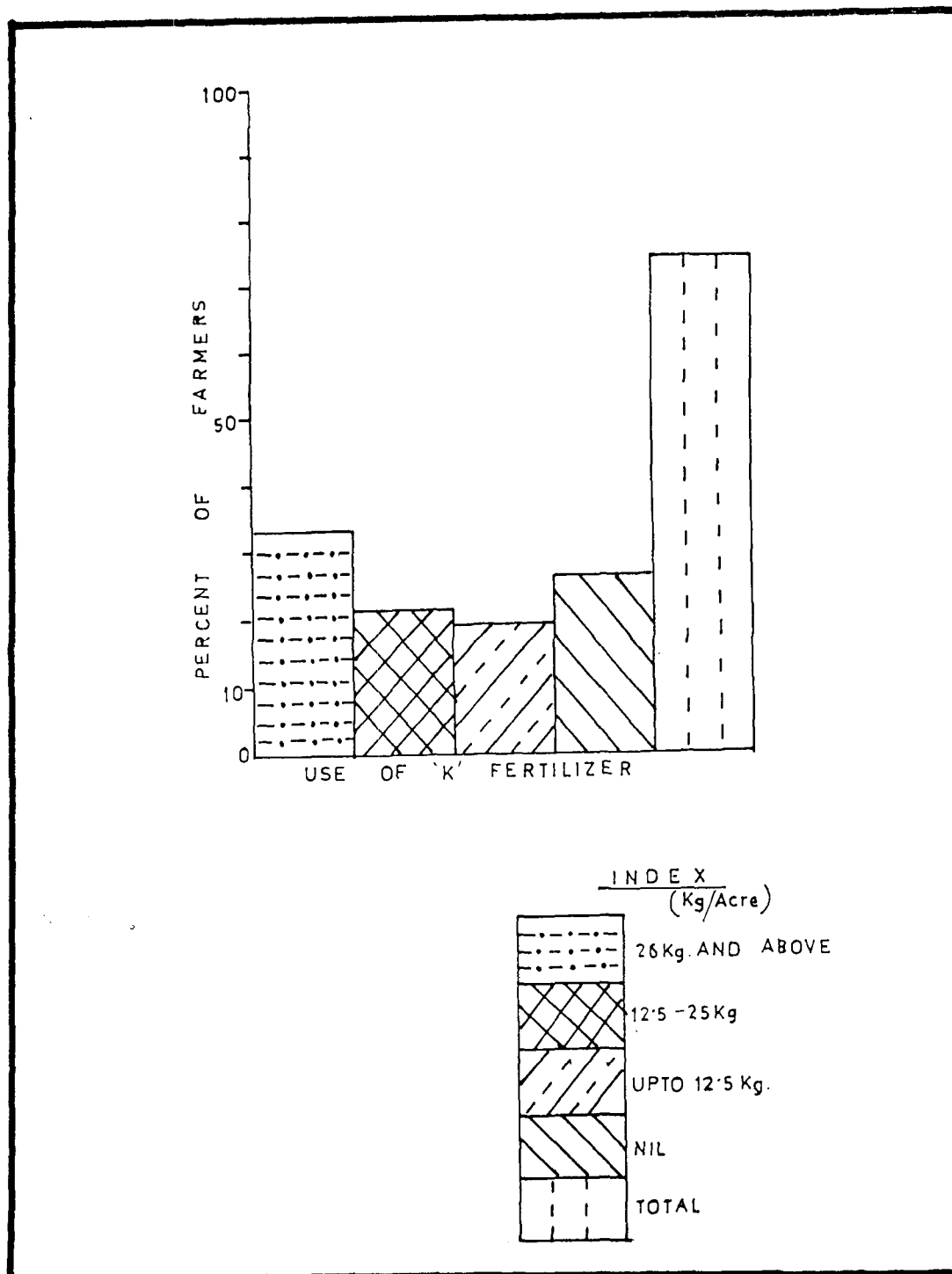


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use of N fertilizers upto 20 kg. per acre, but the per cent of farmers is comparatively low in the 21-30 kg. per-acre user category.

In the case of phosphatic (P) fertilizers the percentage of non-users is higher than in the case of N fertilizer, for more than three - fourths of the farmers are using fertilizers in their cultivated land. It is seen from the table that the modal level of phosphatic fertilizer use is the same as in the case of N fertilizers that is, 26 kg. and above per acre - over 40% of the sample cultivators indicate this level of use. On the other hand, the percentage of farmers using P fertilizers upto 15 kg. per acre is 21.2. In the 16-25 kg. per acre user category, the percentage of farmer is less as compared with the two other groups of farmers mentioned earlier.

Turning to potassic (K) fertilizers, the per cent of non-users is more than a fourth of the total. In this case too, the modal level of users is 26 kg. and above per acre, but the percentages of farmers belonging to the other two category, that is, users of 12.5 kg. - 25 kg. per acre, and upto 12.5 kg. per acre, are close to each other.

Improved Implements

Another component of technology adoption in agriculture is the use of improved implements. Regarding the use of tractors, it is seen that the per cent of users among farmers in all the five blocks considered as a whole is very low (only about a tenth).

USE OF IMPROVED IMPLEMENTS ALL BLOCKS

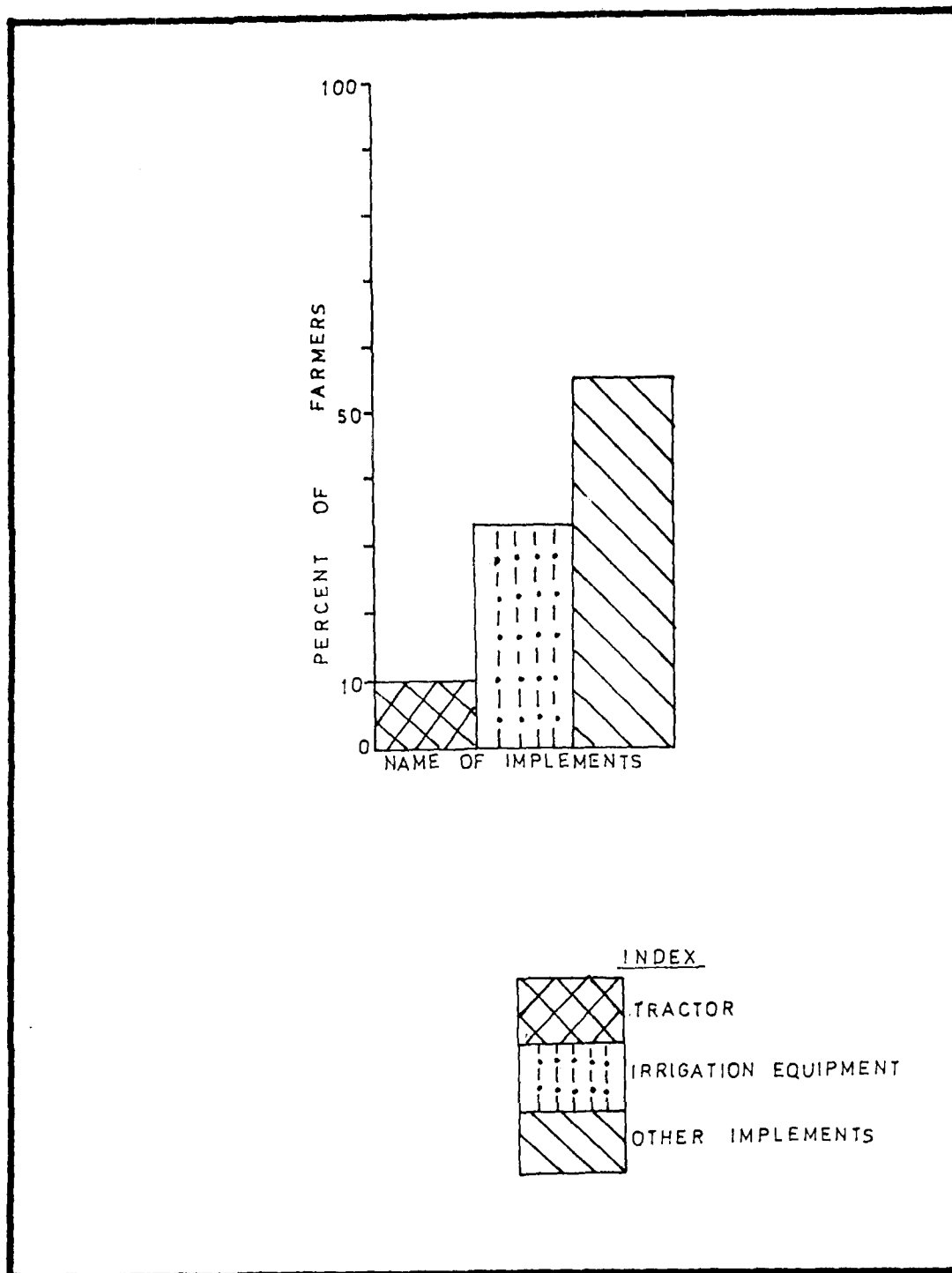


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T A B L E 46

USE OF IMPROVED IMPLEMENTS, ALL BLOCKS

ALL	Improved	Implements	
Blocks	Tractors	Irrigation Equipment	Other Implements
Combined	12/118 (10.2%)	38/118 (33.3%)	65/118 (55%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

As regards irrigation equipmeent, one-third of all the selected farm households made use of some form of such equipment (tubewells, pumpsets, etc.) revealing that the use of irrigation equipment is more widespread than that of tractors. As regards other implements an even larger proportion-more than 50%-of the farmers of the five blocks take recourse to them.

Plant Protection

Turning to the fourth component of superior agricultural technology, namely, plant protection, it is seen that this is more extensive than the three other components of technology adoption among the 118 sample farmers. Thus well over three-fourths (80.5%) of them adopt some form of plant protection measures.

Composite Technology Adoption Index

Considering the CTAI (Composite Technology Adoption Index), it is observed from the table that relatively the maximum

COMPOSITE TECHNOLOGY ADOPTION INDEX

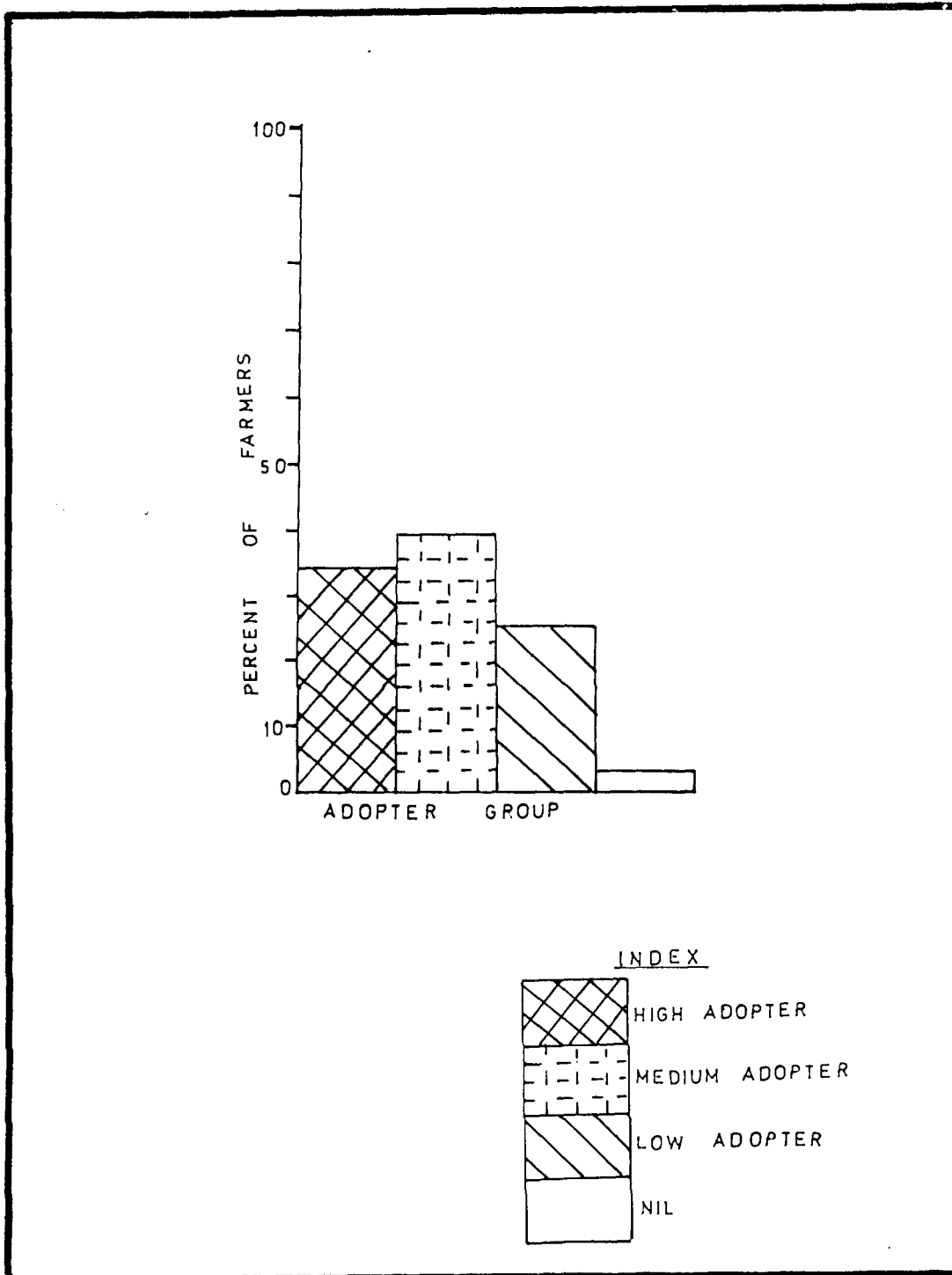


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T A B L E 47
COMPOSITE TECHNOLOGY ADOPTION INDEX

All Blocks	ADOPTER GROUP			
	High	Medium	Low	Nil
Combined	40/118 (33.8%)	45/118 (38.1%)	29/118 (24.5%)	4/118 (3.4%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

number of the sample farmers (about two-fifths) belong to the medium -adopter group. The farmers belonging to the high-adopter group come next. The proportion of farmers (24.5) is comparatively less in the low-adopter category. Farmers belonging to the nil adopter group is negligible.

Socio-Cultural Factors

Education

When the educational status of the sample farmers of the five blocks is considered, it is observed that about one-third of them belong to the high education category.

T A B L E 48
EDUCATIONAL LEVELS OF FARMERS, ALL BLOCKS

All Blocks	Educational Level			
	High	Medium	Low	Illiterate
Combined	39/118 (33%)	23/118 (19.5%)	44/118 (37.3%)	12/118 (10.2%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

EDUCATIONAL LEVELS OF FARMERS ALL BLOCKS

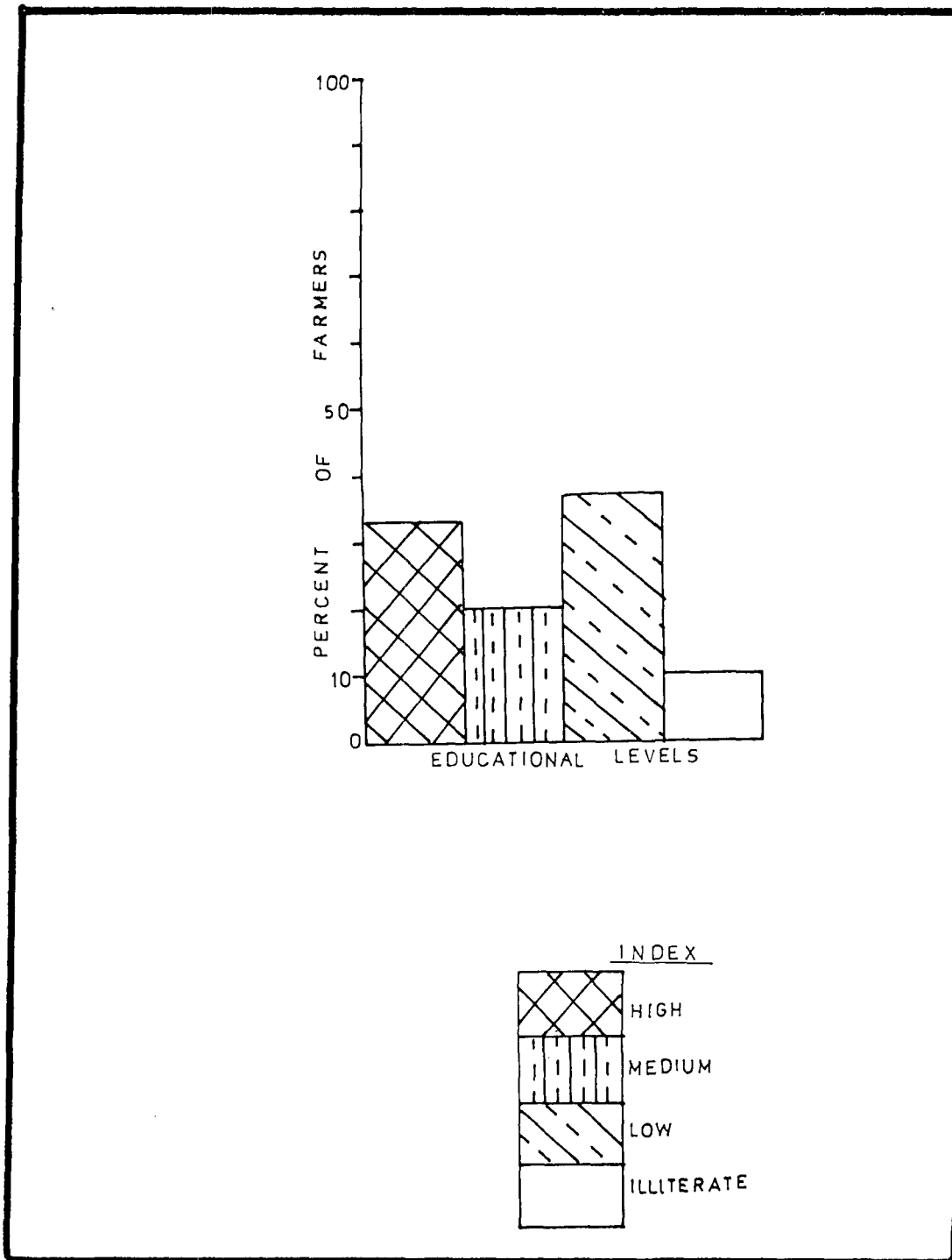


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MASS-MEDIA CONTACT OF FARMERS

ALL BLOCKS

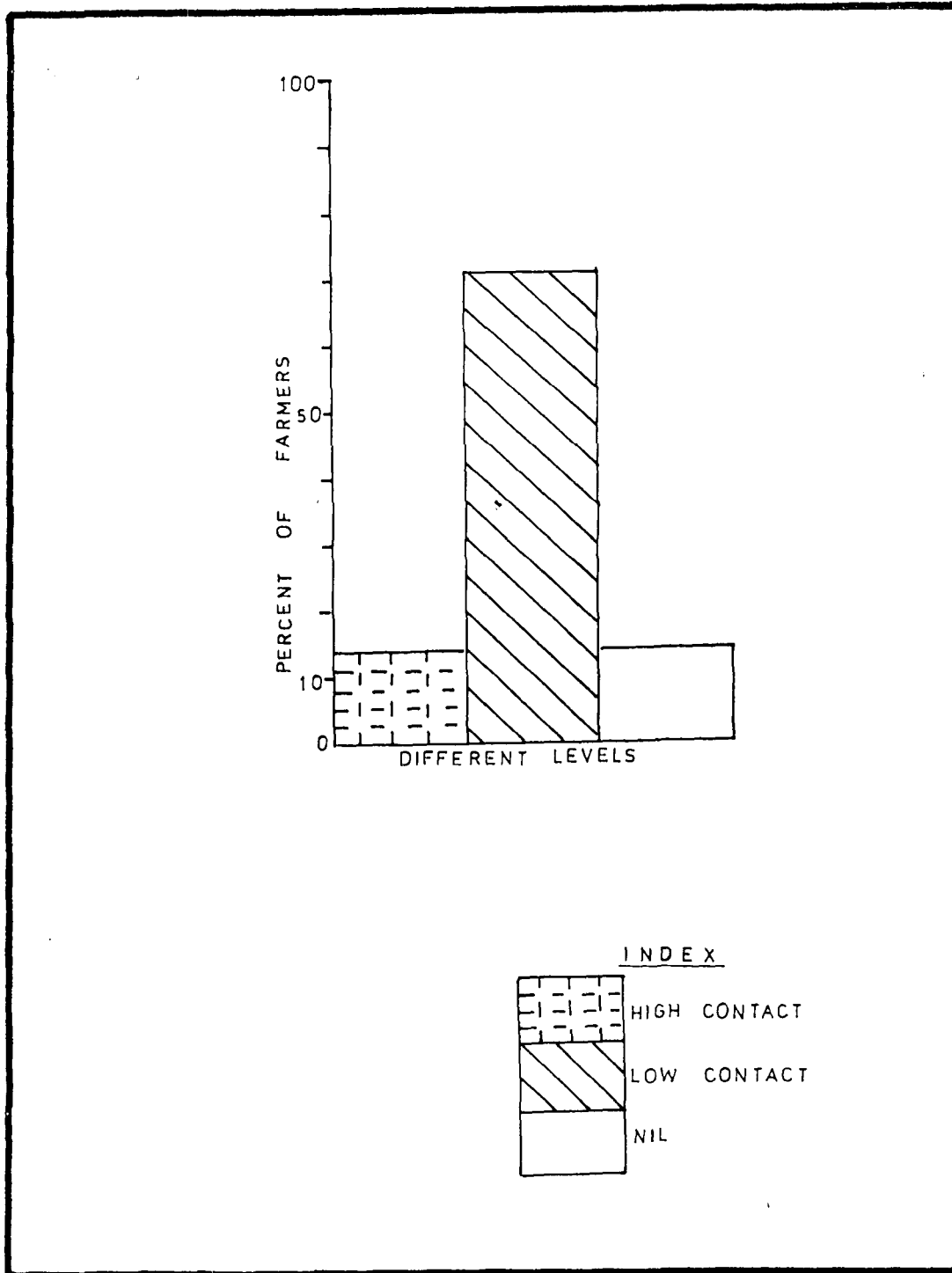


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The percent of farmers having low education is the highest-over 37 percent. About a fifth of the farmers belong to the medium-education group, and for illiterate farmers the percentage is the lowest (about 10).

Mass-Media Contact

More than 70% of the farmers in the selected blocks have low mass-media contact.

T A B L E 49
MASS MEDIA CONTACT OF FARMERS, ALL BLOCKS

All Blocks	Mass-media Contact		
	High	Low	Nil
Combined	17/118 (14.4%)	84/118 (71.2%)	17/118 (14.4%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

The proportion of farmers having high and no mass-media contact are the same, only about 14%.

Urban Contact

For assessing the urban contact, a table has been prepared.

T A B L E 50
URBAN CONTACT OF FARMERS, ALL BLOCKS

All Block	Urban Contact			
	High	Medium	Low	Nil
Combined	36/118 (30.5%)	69/118 (58.5%)	10/118 (8.5%)	3/118 (2.5%)

Source : Compiled and tabulated from the field data,

Note : Figures in parentheses indicate percent of farmers.

URBAN CONTACT OF FARMERS

ALL BLOCKS

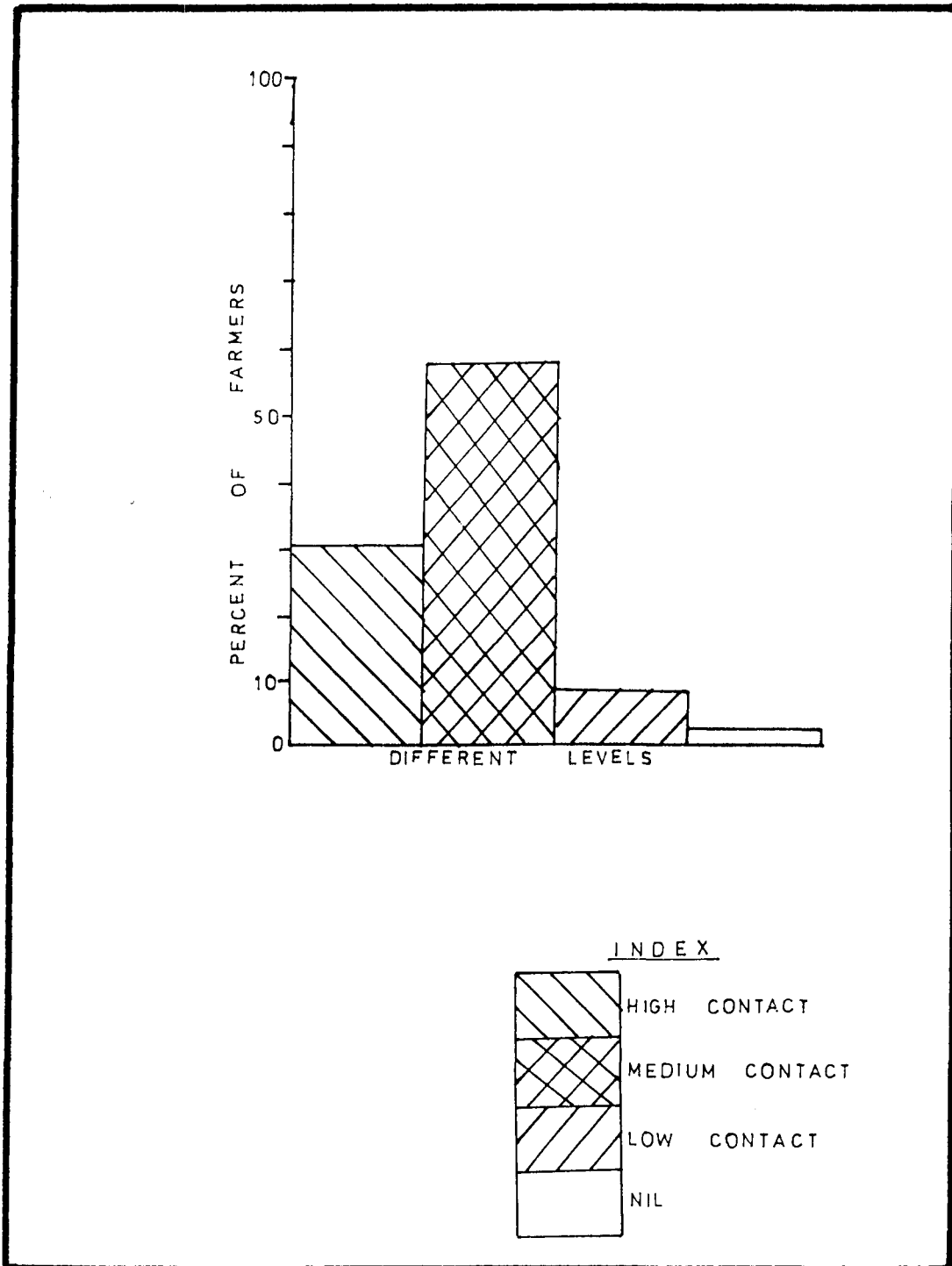


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CASTE AND ETHNICITY OF FARMERS ALL BLOCKS

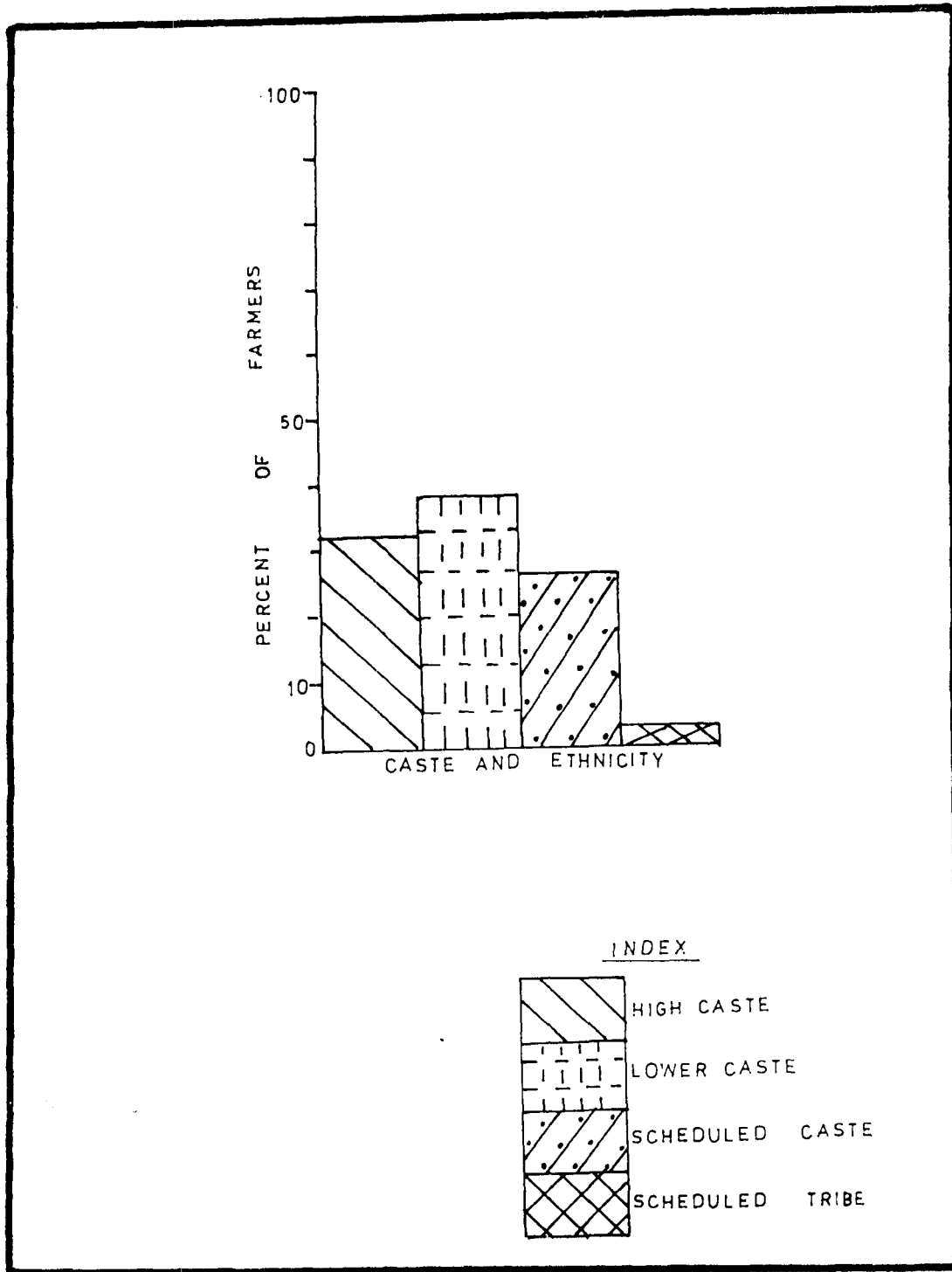


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It is seen from the table that more than one-fourth of the sample farmers have high urban contact. As regards medium urban contact, about two-fifths of the selected sample farmers belong to this group. The per cent of farmers with low urban contact is less than 10. On the other hand, the number of farmers with no urban contact is negligible.

Caste and Ethnicity

Turning to the caste and ethnic group of the sample farmers it is seen that only a third of them belong to high castes, whereas the per cent of lower castes farmers is 38.

T A B L E 51

CASTE AND ETHNICITY OF FARMERS, ALL BLOCKS

All Blocks	Caste and Ethnicity		Scheduled Caste	Scheduled Tribe
	High Caste	Lower Caste		
Combined	38/118 (32.2%)	45/118 (38.1%)	31/118 (26.3%)	4/118 (3.4%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

A little over one-fourth of the sample farmers fall in the category of the scheduled castes, but the proportion of scheduled-tribe farmers is very low only about 3 per cent. The tribal farmers are mostly concentrate in the Onda and the Jamalpur blocks.

Personality Traits

The proportion of highly progressive farmers in the

PERSONALITY TRAITS OF FARMERS

ALL BLOCKS

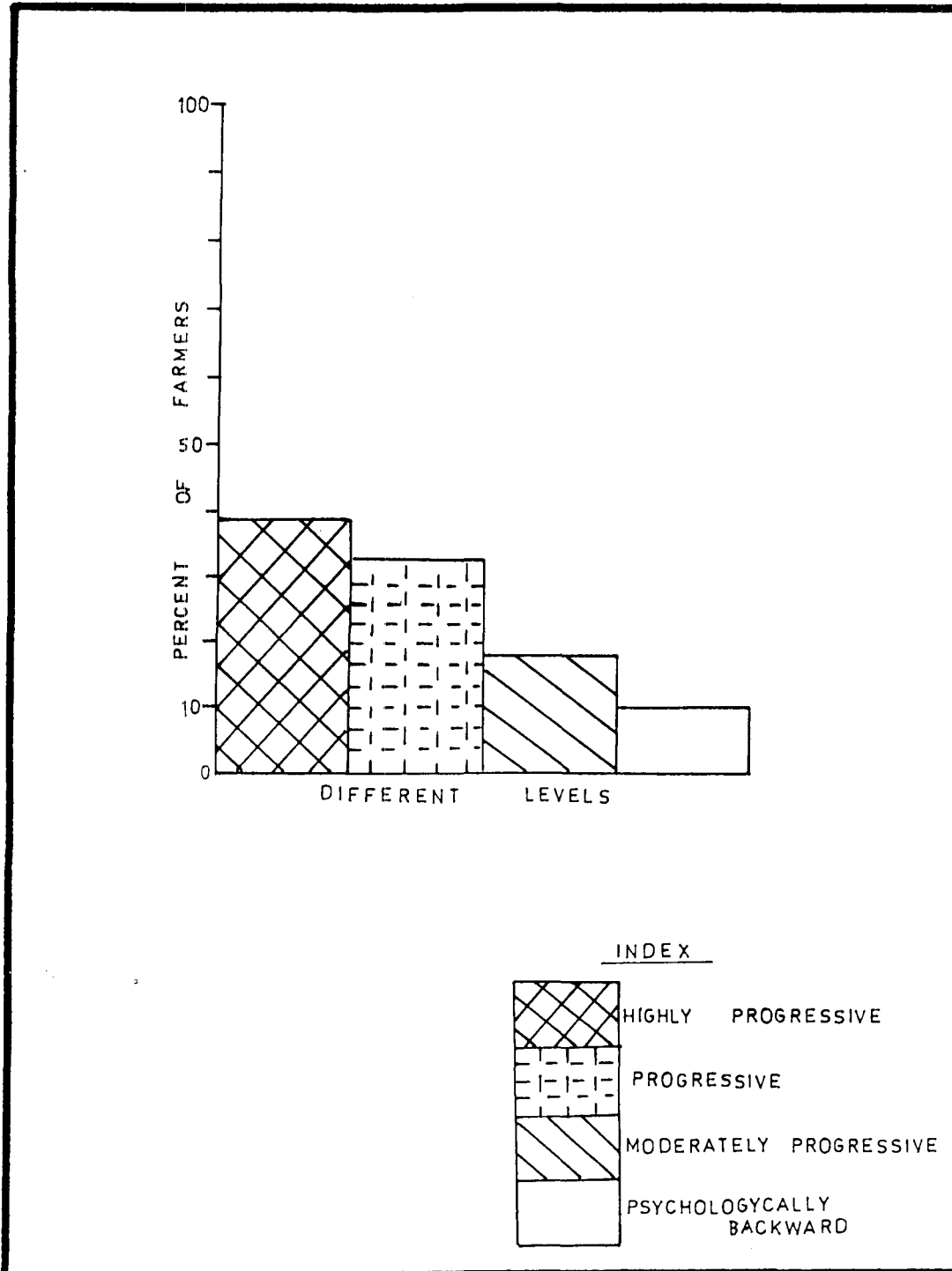


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five selected blocks are about two-fifths of the total. The following table provides a clear picture.

T A B L E 52
PERSONALITY TRAITS OF FARMERS, ALL BLOCKS

All Blocks	Personality Traits			
	Highly Progressive	Progressive	Moderately Progressive	Psychologically Backward
Combined	46/118 (39%)	39/118 (33%)	21/118 (17.8%)	12/118 (10.2%)

Source : Compiled and tabulated from the field data.

Note : Figures in parentheses indicate percent of farmers.

The percent of farmers, who are psychologically progressive, is close to the former group, but the per cent of moderately progressive farmers is relatively low. Farmers considered psychologically backward, comprise only 10% of the total sample farmers.

Relation with Technology Adoption

As in the case of individual blocks, the relation between the socio-cultural factors and technology adoption has been analysed on an aggregative basis (considering five blocks together) by using the rank correlation analysis with suitable correction factor. The rank-correlation co-efficients of the different socio-cultural

variables and technology adoption in agriculture by the sample farmers in the five blocks considered as a whole, are given below.

<u>Variables</u> (Independent/dependent)	<u>Rank-correlation</u> <u>coefficients</u>
1. Education/technology adoption	0.92
2. Mass-media contact technology adoption	0.97
3. Urban Contact/technology adoption	0.97
4. Caste/technology adoption	0.95
5. Personality traits/technology adoption	0.99

The correlation co-efficients are also significant at the 99% probability levels. Thus, expectedly, the results obtained previously in the case of five individual blocks have been more or less replicated in the aggregative analysis.

A few observations may, however, be in order in this connection. The educational and psychological 'backwardness' of many of the sample farmers, (especially the small ones) ,

hampering their technology adoption is often the manifestation of the adverse semi-feudal social environment of rural areas rather than any innate characteristic of the farmers. Also, the low mass-media and urban contact may frequently be the outcome of their social and economic handicaps. These points ought to be remembered while ascribing the degree of technology adoption in agriculture by the selected farmers in West Bengal to the various social and psychological variables considered in the study.