INTRODUCTION
Indian economy is predominantly rural and agriculture oriented where the declining trend in the average size of the farm holding poses a serious problem. In agriculture, 84.00 per cent of the holding is less than 2 acres. Majority of them are dry lands and even irrigated areas depend on the vagaries of monsoon. In this context, if farmers concentrated on crop production they will be subjected to a high degree of uncertainty in income and employment. Hence, it is imperative to evolve suitable strategy for augmenting the income of the small and marginal farmers by combining to increase the productivity and supplement the income. In an agricultural country like India, the average land holding is very small. The population is steadily increasing without any possibility of increase in land area. The income from cropping for an average farmer is hardly sufficient to sustain his family. The farmer has to be assured of a regular income for a reasonable standard of living by including other enterprises.

In view of the above facts there is strong need to commercialize agriculture and in order to ensure an all-round development of farming families farming should be considered as a system in which crop and other enterprises that are compatible and complimentary are combined together. The study of farming systems and application of farming systems approaches can bring a ray of hope for the betterment of farmers. Keeping all these factors in mind the present study was conducted to suggest which particular mixture of crop, dairy and other farming systems can provide maximum benefit.

MATERIALS AND METHODS
The present study was carried out in Wardha district of Maharashtra State, where sample of 120 respondents from 12 villages were purposively selected who had been adopted farming system other than agriculture or subsystem of agriculture. Exploratory research design was used for investigation. For the present study interview schedule was found to be most convenient method for data collection from the farmers. The respondents were categorized with the help of mean and standard deviation. Findings regarding adoption of farming system in relation to selected variables viz. age, education, land holding, farming experience, sources of information, mass media participation, extension participation, organizational participation, economic motivation, innovativeness and risk orientation were included in study.

RESULTS AND DISCUSSION
Table 1. Distribution of respondents according to their adoption of different farming systems.

| Sr. No. | Farming system               | Frequency | Percentage |
|---------|------------------------------|-----------|------------|
| 1       | Agriculture                  | 120       | 100.00     |
| 2       | Dairy                        | 120       | 100.00     |
| 3       | Horticulture/fruit crops     | 78        | 65.00      |
| 4       | Vegetable cultivation        | 100       | 83.33      |
| 5       | Forage crops                | 54        | 45.00      |
| 6       | Goat rearing                | 27        | 22.50      |
| 7       | Poultry                      | 35        | 29.17      |
| 8       | Apiculture                   | 22        | 18.33      |
| 9       | Sericulture                  | 22        | 18.33      |
| 10      | Vermicomposting             | 37        | 30.83      |

It was observed from the Table 1 that almost all the respondents have adopted agriculture and dairy farming followed by vegetable cultivation by 100 respondents (83.33%), horticulture by 65.00 per cent respondents, forage crops by 45 per cent respondents. Sericulture farming systems were adopted by only 18.33 per cent respondents in the study.

Table 2. Correlation coefficient of selected independent variables with integrated farming systems.

| Sr. No. | Independent variables    | Integrated farming system (r value) |
|---------|--------------------------|-----------------------------------|
| 1       | Age                      | 0.0430                            |
| 2       | Education                | 0.1494                            |
| 3       | Land Holding (in hectare)| 0.3736**                          |
| 4       | Farming Experience       | 0.1137                            |
| 5       | Source of Information    | 0.1065                            |
| 6       | Mass Media Participation | -0.0079                           |
| 7       | Extension Participation  | 0.3518**                          |
| 8       | Organizational Participation| 0.2857**                        |
| 9       | Economic Motivation      | 0.0242                            |
| 10      | Innovativeness           | 0.1465                            |
| 11      | Risk Orientation         | -0.2414**                         |

** Significant at 0.01 per cent level of probability.

It is evident from Table 2 that amongst personal, situational and psychological characteristics, land holding was positively and significantly correlated with integrated farming system adopted by the respondents at 0.01 level of probability. It can be conclude that the respondents with large size of land...
Economics of different farming systems

Table 3. Economics of different farming system

| Sr. No. | Farming System       | Average total income (Rs.) | Average total expenditure (Rs.) | Average net profit (Rs.) | Average B:C ratio |
|---------|----------------------|-----------------------------|-------------------------------|-------------------------|-------------------|
| 1       | Agriculture          | 173833                      | 83760                        | 90073                   | 2.28              |
| 2       | Dairy farming        | 139143                      | 102743                       | 36399                   | 1.38              |
| 3       | Horticulture/fruit crop | 306590                     | 188167                       | 118423                  | 1.76              |
| 4       | Vegetable crops      | 30983                       | 19531                        | 11339                   | 1.56              |
| 5       | Forage crops         | 58642                       | 23454                        | 35188                   | 2.71              |
| 6       | Goat rearing         | 26478                       | 12500                        | 13978                   | 2.21              |
| 7       | Backyard poultry     | 3955                        | 1200                         | 2755                    | 3.34              |
| 8       | Apiculture           | 36415                       | 13067                        | 23348                   | 2.82              |
| 9       | Sericulture          | 61663                       | 25581                        | 36082                   | 2.42              |
| 10      | Vermicomposting      | 46878                       | 9781                         | 37097                   | 4.89              |

Agriculture and all allied enterprises presented in Table 3 were found beneficial in farmers’ situation. It is inferred that among all ten farming systems vermicomposting had given maximum net profit with B:C ratio 4.89. It was followed by backyard poultry (3.34), apiculture (2.82), forage crop (2.71), sericulture (2.42), agriculture (2.28) and goat rearing (2.21). All above enterprises were giving more than two rupees on expenditure of one rupee. Below two, fruit crops, vegetable crops and dairy farming were giving 1.76, 1.56 and 1.38 B:C ratio, respectively.

Integrated Farming System Model

The model of integrated farming system given in Fig. 1 is the combination of various farming systems such as vermicomposting (B:C ratio = 4.89), backyard poultry (B:C ratio = 3.34), apiculture (B:C ratio = 2.82), forage crops (B:C ratio = 2.71), sericulture (B:C ratio = 2.42) with agriculture (B:C ratio = 2.28) and dairy farming (B:C ratio = 1.38) are complementary to each other and helps to generate more income that improves socio-economic status of farmers.

On the basis of Benefit-Cost ratio and combination of different farming systems supplementary to each other in farmers’ situation, the above model is prepared which is beneficial to almost all farmers. Vermicomposting helps to generate income by selling vermicompost and vermiculture which provide maximum net return to the farmers. Labour requirement of vermicomposting was also very low, even women member can manage it very effectively. It also provides manure of high fertility status to their own farms. Therefore, it was complementary to the agriculture enterprise.

Sole crop or intercropping of forage crops like sorghum and maize also provide additional benefits in the form of economical produce and bi-produce. It was complementary to agriculture and dairy farming. Even though the dairy farming requires more labour and skilled workers, it provides milk, better monitory returns and family health. It also provides FYM for manuring the crops. It clearly indicated that dairy farming was very important in integration of farming systems as a best complementary enterprise to the other farming systems.

Backyard poultry was found very effective, supplementary and domestic enterprise which can be handled by even old or child members of family. It could provide egg and meat which was like by almost all non vegetarians. Backyard poultry provided bound income to the women members of the family which contributed in their economic empowerment, its B:C ratio was also found very high. Apiculture was also found to be a good subsidiary occupation in combination with agriculture. It requires no labour which can be manage by any family member with some training. Sericulture is one of the farming systems which provided better returns to the farm family in addition to the agriculture.

Integration of different farming systems were also found beneficial by Ramrao et al. (2005), Sharma et al. (2008) and Channabasavanna et al. (2009) in their research of different States.
Channabasavanna, A. S., Biradar, D. P., Prabhudev, K. N. & Mahabaleswar Hegde. (2009). Development of profitable integrated farming system model for small and medium farmers of Tungabhadra project area of Karnataka. Karnataka Journal of Agric. Sci., 22(1), pp. 25-27.

Ramrao, W. Y., Tiwari, S. P. & Singh, P. (2005). Crop-livestock integrated farming system for augmenting socio-economic status of smallholder tribal of Chhattisgarh in central India. Livestock Research for Rural development, Volume 17, Article# 90 Retrieved May 17, 2006, from http://www.cipav.org.co

Sharma, Y. K., Bangarva, G.S. & Sharma, S.K. (2008). Farming System Based Constraints Faced by Farmers. Indian Research Journal of Extension Education, 8 (1), pp. 57-59.

Singh, A. K. & Baruah, M. J. (2012). Adoption behaviour of dairy innovations by small farmers under different farming systems in Assam. Indian Research Journal of Extension Education, 12 (3), pp. 60-64.