ABSTRACT

The present study was designed to assess the factors influencing crop production risks along with analyzing the quantum of crop production risks and measures adopted by the farmers of riverine areas in the Upper Brahmaputra Valley (UBV) zone of Assam. The study also attempted to suggest feasible risk minimized optimal crop production plans to the farmers of the riverine areas. The important objectives in the study were (i) To study the factors influencing risks associated with crop production in the riverine areas of Upper Brahmaputra Valley zone (ii) To measure the quantum of risks and various risk minimization strategies adopted by the farmers (iii) To suggest appropriate risk minimization crop production plans for the farmers of the study area. A multistage stratified random sampling technique was used to select the ultimate sample unit. The farmers were categorized into three size groups that is small (less than 2 ha), medium (2- less than 4 ha) and large (4 ha and above 4 ha). Rice (31.08%) is the major crop in the study area, followed by summer vegetables (24.44%), rabi vegetables (15.81%), pulses (13.01%), potato (5.23%), sugarcane (4.65%), oilseeds (3.40%) and chilli (2.38%). The riverine areas, because of its critical locations are always subjected to high risks of crop loss. The most important risk factor for the three groups of farmers in the study area was the flood and excessive rainfall (49.43%), followed by other factors like soil erosion (12.29%), insufficient rainfall/drought & drought like situation (9.17%), pest and diseases (5.41%), government and agricultural policy (4.24%), input costs (3.42%), insufficient and non availability of farm machinery in time (2.53%), insufficient family labour and difficulties in finding labour(3.40%), lack of contract growing (2.05%), interest rates and debt situation (1.47%), economic condition (1.24%), health problem (1.10%), climatic conditions (1.11%), lack of keeping farm record (0.97%), theft (1.49%), crop prices (0.41%) and crop yields (0.27%). Altogether 18 risk management strategies were listed out of which 17 strategies were followed by the farmers of the study areas. Some of these risk management strategies were ex-ante and some were ex-post. The most effective risk management strategy for the three groups of farmers in the study area was the growing more than one crop (10.11%) followed by strategies like bunding (9.43%), manure and fertilizer application (8.42%), spraying and drenching of pesticides (8.30%), irrigation (8.30%), drainage (8.30%), Intercultural operation including mulching (8.29%), growing more than one variety and adjusting sowing time (7.81%), use of plant growth regulator (4.54%), planning expenditure (4.37%), doing off farm works (4.33%), avoiding high risk farm land (3.40%), ITK (3.18%), arranging resource use (3.12%), reducing debt burden (2.92%) keeping/maintaining farm records (2.74%) and contract growing (2.44%). The MOTAD model was used to suggest appropriate optimal crop production plans by minimizing risks for all size groups of farms of the study area. Ten optimal crop production plans viz., plan-1 through plan-10 were suggested for the three groups of farmers of the study area for adoption. Plan- 1 is a risk minimum plan with lowest expected income while Plan- 10 is high risk plan with highest expected income. Increases in cropping intensities have been observed in the suggested optimal plans as compared to the existing plans. The highest cropping intensity was observed in case of small farms in the maximum expected income plan -10 as compared to medium and large farms.