West Khasi Hills District lies in the central part of the state of Meghalaya and is situated between approximately 25 degrees 10’ and 25 degrees 51’ N Latitude, and between 90 degrees 44’ and 91 degrees 49’ E Longitude. It is bounded on the North-West by Kamrup District of Assam, on the North-East by Ri Bhoi District, on the east by East Khasi Hills District, on the south by Bangladesh and South West Khasi Hills district, the erstwhile Mawkyrwat Civil Sub-Division, on the west by East Garo Hills and South Garo Hills Districts. The district comprises an area of about 5,247 sqkm which is 23 percent of the total area of the state. Nongstoin, covering an area of about 76.00 sq. Km, is the Headquarter of the district.

West Khasi Hills District, presently the largest district of Meghalaya, was carved out of the erstwhile Khasi Hills District on the 28th October, 1976. In the same year, on 10th November, the Mairang Civil Subdivision was inaugurated, whereas the Mawkyrwat Block was converted into an Administrative unit. With the upgradation of Mawkyrwat into a full-fledged Sub-division on June 26th 1982, the district then comprises of three sub-divisions (including the Sadar sub-division), one Administrative unit viz., Mawshynrut which came into being on the 9th February, 1996 and 6 (six) C & R D Blocks viz., Nongstoin, Mairang, Mawkyrwat, Mawshynrut, Ranikor including Mawthadraishan Block which was created on the 20th March, 2001. The district was later bifurcated into two districts—the present West Khasi Hills District and new South West Khasi Hills District headquartered at Mawkyrwat comprising 2 (two) C & R D Blocks viz., Mawkyrwat and Ranikor C & R D Block. More than 80 per cent of the total population in West Khasi Hills is agrarian as their main backbone of livelihood is basically agriculture. Rice, Maize, potato and ginger are the main crops grown in West Khasi Hills. Agriculture and allied activities provide income and employment for the people in West Khasi Hills. Monocropping in lowland areas
and mixed cropping in upland areas are the features of agriculture in the district. Keeping this in view, the present study was conducted to assess the demographic characteristics and constraints faced by farmers in the West Khasi Hills district.

MATERIALS AND METHODS
The study was conducted in West Khasi Hills district of Meghalaya in the year 2016-17. Simple random sampling procedure was adopted for the selection of respondents. Twelve villages were selected from three C& RD Block of four villages each for investigation and 10 respondents from each village were selected. Thus, the total sample for the study constituted 120 respondents. The socio-economic profile and constraints was probed with the help of an interview schedule developed for the study. The various constraints being faced were divided into five categories i.e. input based, financial, marketing, technical and general. For quantitative analysis, percentage, mean and standard deviation was used for the study and overall constraints were ranked on the basis of response of the respondents. Interview schedule was prepared for collecting information on demographic characteristics and constraints faced by the farmers. A survey was conducted in these villages and 10 farmers from each village were interviewed personally to note down the different constraints faced by them in agricultural activities.

RESULTS AND DISCUSSION
Demographic characteristics of the respondents
A perusal on Table 1 indicated that that 37.50 per cent of the farmers belonged to the age group (31-40 yrs) followed by 29.16 percent under 41-50 yr. which shows that individual indulged more in agriculture activities when his family members started increasing to meet the family demands. Majority of them were married (98.30%) and 50 percent of them had large size family which revealed that early marriage is still prevalent in the district in which the findings were in line with the research results of Fakoya et al (2003) and Manay and Farzana (2000), while 35.83 percent studied up to primary school. This situation might have arisen due to low financial position of the respondents and non-realization of importance of education.

Majority of the farmers (45.00%) had marginal land holding followed by small land holders (33.33%) and it was happened due to lack of ancestral property, family property and increase in family size. Majority of the farmers (82.50%) had low level of annual income and this was due to low land-holding possession, unawareness of improved farm technologies with majority of the farmers (58.30%) had no extension contact. Majority of the farmers (87.50%) had medium economic motivation and 54.20 per cent of them had high risk orientation and this occurred due to higher returns received from the farming activities. A large percentage of 41.70 percent had livestock possession of both poultry + piggery as the farmers depend on these livestock for farm manure on crop cultivation, also majority of them cannot afford to buy manures and fertilizers. Majority of them (65.00%) had no training, as more than 35.83 % had education up to primary school.

Constraints faced by the farmers in agricultural activities
Data from table 2 revealed that the various constraints were divided into five sub components as input supply, financial, marketing, technical and general problems. Non availability of inputs in time (83.33%), non availability of recommended chemicals (68.00%) and non availability of improved varieties (50.00%) were the major constraints in input related problems. This was due to the fact that majority of the farmers depend their seed, fertilizers and chemical requirement from Department of Agriculture which was supplied to the farmers on subsidized rate and at a time cannot fulfill the farmers’ needs because the department supplied the inputs as per the allotment sanctioned. The major constraints in financial were lack of credit on marginal interest (83.33%) which were in line with the findings of Joseph and Easwaran (2006) and high cost of chemical fertilizers (57.5%)
### Table 1. Demographic characteristics of the respondents  n=120

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Variable</th>
<th>Category</th>
<th>Respondents (n)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Age (yr)</td>
<td>21-30</td>
<td>24</td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>31-40</td>
<td>45</td>
<td>37.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>41-50</td>
<td>35</td>
<td>29.16</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>51-60</td>
<td>15</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>61-70</td>
<td>1</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Marital status</td>
<td>Married</td>
<td>118</td>
<td>98.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unmarried</td>
<td>2</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
<td>Illiterate</td>
<td>1</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary (Class I-III)</td>
<td>43</td>
<td>35.83</td>
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<tr>
<td></td>
<td></td>
<td>Medium (Class IV-VI)</td>
<td>40</td>
<td>33.33</td>
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<tr>
<td></td>
<td></td>
<td>High School (VII-X)</td>
<td>31</td>
<td>25.83</td>
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<tr>
<td></td>
<td></td>
<td>Intermediate (X-XII)</td>
<td>5</td>
<td>4.16</td>
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<tr>
<td>4</td>
<td>Family size</td>
<td>Small size (1 - 3)</td>
<td>21</td>
<td>17.5</td>
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<tr>
<td></td>
<td></td>
<td>Medium size (4 - 6)</td>
<td>39</td>
<td>32.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large size (7 and above)</td>
<td>60</td>
<td>50.0</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Land holding</td>
<td>Marginal (0.1-1.0 ha)</td>
<td>54</td>
<td>45.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small (1.1-2.0 ha)</td>
<td>40</td>
<td>33.33</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Semi-medium (2.1-4.0 ha)</td>
<td>14</td>
<td>11.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium (4.1-10.0 ha)</td>
<td>12</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Annual income *</td>
<td>Low income (up to Rs.17,000)</td>
<td>99</td>
<td>82.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Agriculture + live-stock)</td>
<td>Semi-medium income (Rs.17,001-34,000)</td>
<td>1</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium income (Rs.34,001-51,000)</td>
<td>20</td>
<td>1.66</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>High income (above Rs.51,000)</td>
<td>0</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Extension contact</td>
<td>Never</td>
<td>70</td>
<td>58.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regularly</td>
<td>10</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occasionally</td>
<td>40</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Economic Motivation</td>
<td>Low (&lt;22.8)</td>
<td>10</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium (22.8-24.2)</td>
<td>105</td>
<td>87.5</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>High (&gt;24.2)</td>
<td>5</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean: 23.5, SD: 1.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Risk Orientation</td>
<td>Low (&lt;18.9)</td>
<td>50</td>
<td>41.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium (18.9-23.3)</td>
<td>5</td>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>High (&gt;23.3)</td>
<td>65</td>
<td>54.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean: 21.1, SD: 5.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Livestock Possession</td>
<td>No livestock</td>
<td>10</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poultry</td>
<td>40</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Piggery</td>
<td>20</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poultry + Piggery</td>
<td>50</td>
<td>41.7</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Training</td>
<td>No training</td>
<td>78</td>
<td>65.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low (&lt;0.62)</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium (0.62-1.26)</td>
<td>36</td>
<td>30.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>High (&gt;1.26)</td>
<td>3</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean: 0.325, SD: 4.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Constraints faced by the farmers in agricultural activities. (n=120)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Constraint</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td><strong>Input</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Non availability of inputs in time</td>
<td>83.33</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>Non availability of recommended chemicals</td>
<td>68.00</td>
<td>II</td>
</tr>
<tr>
<td>3.</td>
<td>Non availability of improved varieties</td>
<td>50.00</td>
<td>III</td>
</tr>
<tr>
<td>b.</td>
<td><strong>Financial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Lack of credit on marginal interest</td>
<td>83.33</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>High cost of chemical fertilizers</td>
<td>57.5</td>
<td>II</td>
</tr>
<tr>
<td>c.</td>
<td><strong>Marketing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Fluctuations in market price</td>
<td>83.33</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>Lack of storage facilities</td>
<td>75.00</td>
<td>II</td>
</tr>
<tr>
<td>3.</td>
<td>Exploitation by the middleman</td>
<td>70.83</td>
<td>III</td>
</tr>
<tr>
<td>4.</td>
<td>Lack of market information</td>
<td>66.66</td>
<td>IV</td>
</tr>
<tr>
<td>d.</td>
<td><strong>Technical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Lack of skill for seed and soil treatment</td>
<td>95.00</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>Lack of knowledge for application of manures, plant protection chemicals as per recommended dose</td>
<td>90.00</td>
<td>II</td>
</tr>
<tr>
<td>3.</td>
<td>Lack of need based training</td>
<td>85.00</td>
<td>III</td>
</tr>
<tr>
<td>4.</td>
<td>Increased resistance of pests and diseases to plant protection chemicals</td>
<td>67.5</td>
<td>IV</td>
</tr>
<tr>
<td>e.</td>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Uncertainty of rainfall</td>
<td>86.20</td>
<td>I</td>
</tr>
<tr>
<td>2.</td>
<td>Labour shortage</td>
<td>56.66</td>
<td>II</td>
</tr>
<tr>
<td>3.</td>
<td>High labour cost</td>
<td>37.5</td>
<td>III</td>
</tr>
<tr>
<td>4.</td>
<td>Poor transportation facilities</td>
<td>21.66</td>
<td>IV</td>
</tr>
</tbody>
</table>

which arose because the Department of Agriculture, Government of Meghalaya at present has stopped the subsidy for chemical fertilizers and pesticides and replaced them with organic manures and biopesticides to promote Organic Agriculture in the state in which the farmers had to buy chemical fertilizers from the local supplier at a very high price. Fluctuations market price (83.33%), Lack of storage facilities (75.00%) were the major constraints in marketing. The findings were in line with the research results of Rao et al (2007). The major technical problems were lack of skill for seed and soil treatment (95.00%), lack of knowledge for application of manures, plant protection chemicals as per recommended dose (90.00%) which were in line with Resmy et al (2001) and lack of need based training (85.00%) and this occurred due to lack of extension contact with Agriculture Officers and KVK scientists. The general problems were uncertainty of rainfall (86.20%), labour shortage (56.66%), high labour cost (37.5%) and poor transportation facilities (21.66%).
CONCLUSION

The study revealed that the farmers of the district need more awareness regarding the value of education so that their children would take interest on education which in turn would help from early marriage. They would require to pay a visit at least once a month to the KVK, Agriculture State Departments and allied Departments for their farm needs. The study also revealed that to tackle the different constraints, the farmers need to have a proper farm management and marketing training skill, proper training skill on different IPM practices and awareness on credit linkage as well as subsidy facilities to buy farm machineries.

REFERENCES


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