**Annexure 2 - Figures**

1. **Scatter plots of value of output/ha (Rs) and area (ha) under cultivation: 2013-14**

**paddy wheat maize**



**r&m sugarcane cotton**



 **arhar bajra soybean**



 **jowar groundnut gram**



**2: Scatter plots of net-returns/ha (Rs) and area (ha) under cultivation: 2013-14**

**paddy wheat maize **

**r&m sugarcane cotton A arhar bajra soybean**

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 **jowar groundnut gram**

*Source: Author’s calculations.*

**(Annexure 1 –Tables)**

**Table 1.1a**: **Descriptive statistics of Paddy at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **All India (N = 7269)** | **Assam (N=884)** | **Odisha (N =1116)** | **West Bengal (N =1722)** |
| var | m | std | m | std | m | std | m | std |
| Y1 | 364901.3 | 148338 | 298509.3 | 86522.04 | 282387.9 | 88870.87 | 402559.5 | 111462.2 |
| Y2 | 54174.66 | 28127.38 | 34368.88 | 11678.13 | 37349.93 | 11556.56 | 58362.05 | 17695.56 |
| Y3 | 16523.95 | 23071.06 | 4498.62 | 10947.62 | 3142.28 | 11096.59 | 13137.85 | 12900.73 |
| $$X\_{A}$$ | 0.73 | 0.73 | 0.71 | 0.51 | 0.57 | 0.34 | 0.36 | 0.23 |
| $$P\_{L}^{\*}$$ | 9.89 | 0.48 | 9.78 | 0.35 | 10 | 0.32 | 10.25 | 0.3 |
| $$P\_{HLR}^{\*}$$ | 3.91 | 0.72 | 3.18 | 0.7 | 3.78 | 0.64 | 3.99 | 0.79 |
| $$P\_{S}^{\*}$$ | 1921.91 | 1604.31 | 908.8 | 319.84 | 1112.28 | 173.89 | 1729.42 | 756.01 |
| $$P\_{L}^{\*}$$ | 4445.01 | 3481.1 | 1136.87 | 1214.78 | 3987.13 | 1562.61 | 5190.27 | 3064.66 |

*Source: Author’s Calculations*

*N = Number of Observations, Note: Y1: yield in kg per ha; Y2: value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1b**: **Descriptive statistics of Wheat at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | **All India (2860)** | **Haryana (189)** | **Madhya Pradesh (276)** | **Punjab (325)** | **Uttar Pradesh (609)** |
| var | m | std | m | std | m | std | m | std | m | std |
| Y1 | 343426.7 | 119730 | 459839.5 | 62703.48 | 317778.5 | 88702.27 | 489417.1 | 68149.78 | 356689.4 | 78543.54 |
| Y2 | 60287.26 | 20797.43 | 83070.12 | 11173.6 | 55074.7 | 13949.66 | 77288.78 | 10808.31 | 61165.29 | 14914.34 |
| Y3 | 27641.97 | 16742.4 | 37854.81 | 14730.87 | 28652.66 | 11447.77 | 47701.81 | 10082.46 | 26126.5 | 12352.76 |
| $$X\_{A}$$ | 0.89 | 0.93 | 1.78 | 1.81 | 1.45 | 0.71 | 1.43 | 1.33 | 0.56 | 0.57 |
|  $ P\_{L}^{\*}$ | 9.04 | 0.58 | 9.42 | 0.68 | 8.8 | 0.54 | 8.54 | 0.52 | 9.09 | 0.51 |
|  $P\_{HLR}^{\*}$ | 3.36 | 1.04 | 3.35 | 0.96 | 3.18 | 1.05 | 3.29 | 0.65 | 3.33 | 1.02 |
|  $ P\_{S}^{\*}$ | 2756.66 | 945.79 | 2383.05 | 579.59 | 2665.91 | 492.28 | 1993.57 | 630.75 | 2957.44 | 655.72 |
|  $ P\_{L}^{\*}$ | 4152.67 | 1662.08 | 4407.83 | 667.83 | 2772.91 | 885.83 | 5119.78 | 1047.12 | 4484.19 | 1489.9 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2: value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1c**: **Descriptive statistics of Arhar at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **All India (311)**  | **Karnataka (48)**  | **Maharashtra (108)**  |
| **var** | **m** | **std** | **m** | **std** | **m** | **std** |
| Y1 | 128689.70 | 127683.20 | 118902 | 70799.17 | 203386.90 | 179777.30 |
| Y2 | 53227.98 | 50801.98 | 50278.67 | 30901.07 | 80838.11 | 71391.06 |
| Y3 | 23430.15 | 39517.68 | 30314.17 | 29884.86 | 35126.83 | 57566.15 |
| $$X\_{A}$$ | 0.64 | 1.04 | 2.02 | 1.87 | 0.20 | 0.23 |
| $$P\_{L}^{\*}$$ | 9.42 | 0.71 | 8.94 | 0.55 | 9.90 | 0.64 |
| $$P\_{HLR}^{\*}$$ | 3.57 | 1.11 | 4.06 | 0.27 | 3.86 | 0.65 |
| $$P\_{S}^{\*}$$ | 1137.92 | 654.49 | 776.01 | 379.97 | 1298.27 | 799.68 |
| $$P\_{L}^{\*}$$ | 2501.26 | 3847.05 | 2035.01 | 1877.90 | 4344.42 | 5308.93 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2: value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1d**: **Descriptive statistics of Gram at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **All India (486)** | **Madhya Pradesh (146)** | **Maharashtra (121)** | **Rajasthan (60)** |
| var | m | std | m | std | m | std | m | std |
| Y1 | 106046.70 | 48578.12 | 90498.10 | 24069.14 | 124899.60 | 59238.29 | 97689.90 | 55942.37 |
| Y2 | 33602.52 | 15996.47 | 28463.00 | 11239.47 | 37768.74 | 18956.76 | 31710.76 | 20173.74 |
| Y3 | 13340.27 | 13925.31 | 9795.78 | 10159.73 | 13770.47 | 15001.11 | 14622.40 | 18873.70 |
| $$X\_{A}$$ | 1.11 | 0.98 | 1.38 | 0.69 | 0.82 | 0.64 | 1.16 | 0.98 |
| $$P\_{L}^{\*}$$ | 8.85 | 0.43 | 8.73 | 0.21 | 8.93 | 0.53 | 8.91 | 0.52 |
| $$P\_{HLR}^{\*}$$ | 3.58 | 1.12 | 3.76 | 0.81 | 3.91 | 0.67 | 1.86 | 1.28 |
| $$P\_{S}^{\*}$$ | 3555.80 | 1506.90 | 3967.32 | 1726.44 | 3273.69 | 1180.49 | 2240.70 | 741.13 |
| $$P\_{L}^{\*}$$ | 1797.36 | 1413.94 | 1561.19 | 454.67 | 2236.62 | 1691.48 | 600.72 | 791.31 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1e**: **Descriptive statistics of Soybean at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **All India (616)** | **Madhya Pradesh (257)** | **Maharashtra (270)** |
| var | m | std | m | std | m | std |
| Y1 | 110889.20 | 57718.18 | 86736.66 | 27831.13 | 147076.90 | 65695.20 |
| Y2 | 35231.25 | 18159.17 | 27265.88 | 9237.24 | 46449.47 | 20387.18 |
| Y3 | 11169.02 | 13851.80 | 8178.13 | 8700.36 | 16225.29 | 17227.46 |
| $$X\_{A}$$ | 1.17 | 0.81 | 1.53 | 0.70 | 0.81 | 0.66 |
| $$P\_{L}^{\*}$$ | 8.97 | 0.45 | 8.73 | 0.36 | 9.23 | 0.38 |
| $$P\_{HLR}^{\*}$$ | 3.79 | 0.88 | 3.68 | 0.93 | 4.09 | 0.43 |
| $$P\_{S}^{\*}$$ | 4028.08 | 777.83 | 3805.53 | 494.47 | 4010.44 | 899.05 |
| $$P\_{L}^{\*}$$ | 2919.99 | 2949.86 | 2402.86 | 1609.73 | 3839.45 | 3807.26 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;* $ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1f**: **Descriptive statistics of Rapeseed &Mustard Gram at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **All India (732)** | **Rajasthan (200)** | **Uttar Pradesh (175)** | **West Bengal (117)** |
| var | m | std | m | std | m | std | m | std |
| Y1 | 133126.20 | 51191.51 | 147211.00 | 53091.67 | 120824.00 | 50302.12 | 121325.50 | 32502.35 |
| Y2 | 42476.17 | 17306.61 | 47278.83 | 17437.58 | 39345.77 | 17203.89 | 39550.79 | 11133.22 |
| Y3 | 17671.42 | 18116.64 | 23284.58 | 14749.32 | 14348.86 | 21053.57 | 10595.47 | 12509.29 |
| $$X\_{A}$$ | 0.67 | 0.72 | 0.84 | 0.72 | 0.37 | 0.64 | 0.31 | 0.16 |
| $$P\_{L}^{\*}$$ | 9.32 | 0.47 | 9.29 | 0.36 | 9.26 | 0.63 | 9.69 | 0.33 |
| $$P\_{HLR}^{\*}$$ | 2.99 | 1.31 | 2.17 | 1.28 | 2.80 | 1.45 | 3.95 | 0.78 |
| $$P\_{S}^{\*}$$ | 632.34 | 364.93 | 714.90 | 398.94 | 707.07 | 347.41 | 478.80 | 161.10 |
| $$P\_{L}^{\*}$$ | 3135.11 | 1945.35 | 2216.00 | 1065.93 | 3137.82 | 1765.90 | 4783.94 | 2501.93 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1g**: **Descriptive statistics of Groundnut at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |
| --- | --- | --- |
|  | **All India (317)** | **Gujarat (102)** |
| var | m | std | m | std |
| Y1 | 144792.40 | 65986.98 | 176994.00 | 50090.07 |
| Y2 | 59466.97 | 27900.27 | 73328.35 | 22349.22 |
| Y3 | 14033.64 | 21613.81 | 26122.65 | 20096.88 |
| $$X\_{A}$$ | 1.03 | 1.04 | 1.34 | 0.94 |
| $$P\_{L}^{\*}$$ | 9.78 | 0.57 | 9.52 | 0.48 |
| $$P\_{HLR}^{\*}$$ | 3.84 | 0.63 | 3.69 | 0.72 |
| $$P\_{S}^{\*}$$ | 9604.58 | 3578.50 | 10997.19 | 3500.82 |
| $$P\_{L}^{\*}$$ | 5446.15 | 5666.13 | 5427.22 | 5738.49 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha;* $ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1h**: **Descriptive statistics of Bajra at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **All India (419)** | **Gujarat (64)** | **Rajasthan (197)** |
| var | m | std | m | std | m | std |
| Y1 | 167644.50 | 106584.40 | 280340.50 | 108662.10 | 117120.30 | 87287.44 |
| Y2 | 29641.63 | 18021.45 | 51728.20 | 18880.68 | 23846.88 | 15296.52 |
| Y3 | 7069.39 | 11530.75 | 18210.77 | 13910.10 | 4217.57 | 8503.29 |
| $$X\_{A}$$ | 0.86 | 0.86 | 0.66 | 0.60 | 1.00 | 0.96 |
| $$P\_{L}^{\*}$$ | 9.34 | 0.44 | 9.54 | 0.34 | 9.30 | 0.48 |
| $$P\_{HLR}^{\*}$$ | 2.60 | 1.65 | 3.99 | 0.43 | 1.61 | 1.54 |
| $$P\_{S}^{\*}$$ | 920.17 | 546.41 | 1511.74 | 762.65 | 798.27 | 452.57 |
| $$P\_{L}^{\*}$$ | 1622.03 | 2851.83 | 2945.77 | 3002.35 | 1119.27 | 2468.75 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1i**:**Descriptive statistics of Jowar at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |
| --- | --- | --- |
|   | **All India (234)** | **Maharashtra (113)** |
| var  | m | std | m | std |
| Y1 | 159202.50 | 103602.80 | 138016.60 | 73928.17 |
| Y2 | 38505.71 | 22931.14 | 36751.24 | 23888.71 |
| Y3 | 11917.58 | 14491.22 | 7797.80 | 10598.70 |
| $$X\_{A}$$ | 0.98 | 0.92 | 0.76 | 0.91 |
| $$P\_{L}^{\*}$$ | 9.29 | 0.51 | 9.30 | 0.52 |
| $$P\_{HLR}^{\*}$$ | 3.82 | 0.79 | 3.79 | 0.78 |
| $$P\_{S}^{\*}$$ | 703.00 | 502.11 | 609.13 | 378.91 |
| $$P\_{L}^{\*}$$ | 2141.88 | 1893.09 | 2209.06 | 1574.59 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1j**: **Descriptive statistics of Maize at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **All India (734)** | **Andhra Pradesh (114)** | **Karnataka (133)** |
| var | m | std | m | std | m | std |
| Y1 | 316735.10 | 230913.30 | 627855.50 | 181975.00 | 405078.40 | 146985.70 |
| Y2 | 43460.44 | 28648.36 | 77919.08 | 21216.48 | 51235.41 | 19649.03 |
| Y3 | 12679.96 | 19264.66 | 39300.70 | 17793.91 | 16173.84 | 13566.81 |
| $$X\_{A}$$ | 0.82 | 0.84 | 1.25 | 0.74 | 1.40 | 1.27 |
| $$P\_{L}^{\*}$$ | 9.50 | 0.53 | 9.52 | 0.71 | 9.45 | 0.52 |
| $$P\_{HLR}^{\*}$$ | 3.62 | 1.13 | 4.13 | 0.41 | 4.13 | 0.35 |
| $$P\_{S}^{\*}$$ | 2409.75 | 2007.44 | 4130.09 | 1576.95 | 2503.78 | 1037.77 |
| $$P\_{L}^{\*}$$ | 5144.28 | 4112.46 | 7242.24 | 2845.07 | 7540.35 | 4533.85 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha ;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1k**: **Descriptive statistics of Cotton at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **All India (1011)** | **Gujarat (357)** | **Maharashtra (181)** |
| var | m | std | m | std | m | std |
| Y1 | 190649.50 | 87555.16 | 227894.50 | 102499.30 | 186709.00 | 83952.77 |
| Y2 | 91776.65 | 43837.90 | 111904.90 | 51156.66 | 87427.10 | 39871.44 |
| Y3 | 42507.42 | 36181.10 | 59012.44 | 40812.96 | 33751.67 | 35779.66 |
| $$X\_{A}$$ | 1.22 | 1.01 | 1.33 | 1.16 | 0.93 | 0.78 |
| $$P\_{L}^{\*}$$ | 10.08 | 0.44 | 10.17 | 0.45 | 10.03 | 0.35 |
| $$P\_{HLR}^{\*}$$ | 3.80 | 0.86 | 3.86 | 0.79 | 4.05 | 0.42 |
| $$P\_{S}^{\*}$$ | 3520.71 | 1255.95 | 3068.30 | 927.04 | 3316.55 | 945.07 |
| $$P\_{L}^{\*}$$ | 7585.16 | 5709.46 | 7918.91 | 5872.36 | 10810.34 | 7582.46 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha;*$ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*

**Table 1.1l**: **Descriptive statistics of Sugarcane at all India level as well as the major crop producing states for the year 2013-14.**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **All India (846)** | **Maharashtra (358)** | **Uttar Pradesh (194)** |
| var | m | std | m | std | m | std |
| Y1 | 8699659 | 3769945 | 10600000.00 | 3999810.00 | 5049580 | 1270330 |
| Y2 | 209864.70 | 86662.55 | 241202.90 | 100250.40 | 143758.30 | 38930.77 |
| Y3 | 111475.60 | 59788.31 | 117502.90 | 74981.67 | 94847.77 | 37644.74 |
| $$X\_{A}$$ | 0.73 | 0.75 | 0.51 | 0.38 | 0.47 | 0.37 |
| $$P\_{L}^{\*}$$ | 10.67 | 0.63 | 10.75 | 0.45 | 9.97 | 0.47 |
| $$P\_{HLR}^{\*}$$ | 4.08 | 0.51 | 4.10 | 0.31 | 3.82 | 0.86 |
| $$P\_{S}^{\*}$$ | 7224.78 | 9416.02 | 7643.96 | 8840.72 | 8252.00 | 9830.91 |
| $$P\_{L}^{\*}$$ | 14721.28 | 11586.03 | 22056.86 | 12886.13 | 4773.20 | 3213.32 |

*Source: Author’s Calculations*

*Note: Y1: yield in kg per ha; Y2:value of output per ha (Rs.); Y3: net returns per ha (Rs.)*

$X\_{A}$*: crop area;* $ P\_{L}^{\*}$*: total labour cost per ha (Rs.);* $P\_{HLR}^{\*}$*: ratio of hired to the total labour cost per ha;* $ P\_{S}^{\*}$*: total seed cost per ha (Rs.);* $ P\_{F}^{\*}$*: total fertilizer cost per ha (Rs.).*

*Note: var: variable; m: mean value; std: standard deviation*