|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Note | Model no. | Input size | Trainset | #Train samples | Testset | #Test samples | i | Learning rate | %TP Good | %TP Avg | %TP Poor | Train time (min) | Accuracy |
| Images from all growing seasons |  | **Class Good//Medium//Poor** |  | **Class Good//Medium//Poor** |  |  |  |  |  |  |  |  |
| 1 | 32x32 | Original//Original//Original | 1518 | Original//Original//Original | 763 | 5 | 0.001 | 38 | 13.1 | 0 | 0.2 | 51.11 |
| 2a | 32x32 | Original//Original//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original//Original//Original | 763 | 10 | 0.001 | 11.66 | 34.73 | 1.44 | 0.33 | 47.83 |
| 2b | 32x32 | Original//Original/Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original//Original//Original | 763 | 10 | 0.005 | 41.80 | 2.49 | 1.04 | 0.46 | 45.34 |
| 2b | 32x32 | Original//Original//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 10 | 0.005 | 1.52 | 0.08 | 6.94 | 0.46 | 8.56 |
| 2b | 32x32 | Original//Original//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 10 | 0.005 | 11.59 | 0.68 | 5.47 | 0.46 | 17.75 |
| 2c | 32x32 | Original//Original//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop (split into 3 batches) | 1837 | Original//Original//Original | 763 | 10 | 0.005 | 3.40 | 32.37 | 2.88 | 2.33 | 38.66 |
| 2c | 32x32 | Original//Original//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop (split into 3 batches) | 1837 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 10 | 0.005 | 1.39 | 1.48 | 6.81 | 2.33 | 9.69 |
| 2c | 32x32 | Original//Original//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop (split into 3 batches) | 1837 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 10 | 0.005 | 1.90 | 9.20 | 5.83 | 2.33 | 16.93 |
| 3 | 32x32 | Original//200x200 pixels center crop//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original//Original//Original | 763 | 10 | 0.005 | 46.92 | 1.57 | 1.04 | 0.48 | 49.54 |
| 3 | 32x32 | Original//200x200 pixels center crop//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 10 | 0.005 | 2.53 | 35.08 | 1.52 | 0.48 | 39.14 |
| 3 | 32x32 | Original//200x200 pixels center crop//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 10 | 0.005 | 13.63 | 26.70 | 1.40 | 0.48 | 41.74 |
| 4 | 32x32 | 200x200 pixels center crop//200x200 pixels center crop//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original//Original//Original | 763 | 10 | 0.005 | 12.31 | 0.91 | 6.42 | 0.46 | 19.65 |
| 4 | 32x32 | 200x200 pixels center crop//200x200 pixels center crop//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 10 | 0.005 | 25.77 | 11.66 | 2.88 | 0.46 | 40.32 |
| 4 | 32x32 | 200x200 pixels center crop//200x200 pixels center crop//Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 1837 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 10 | 0.005 | 22.41 | 8.97 | 3.76 | 0.46 | 35.15 |
| 5a | 32x32 | Original//Original//N.A | 1413 | Original//Original//N.A | 709 | 10 | 0.005 | 37.51 | 20.31 | N/A | 0.68 | 57.82 |
| 5b | 32x32 | Original & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A |  | Original//Original//N.A | 709 | 15 | 0.005 | 36.67 | 23.83 | N/A | 1.03 | 60.50 |
| 5b | 32x32 | Original & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A |  | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //NA | 2836 | 15 | 0.005 | 30.32 | 23.74 | N/A | 1.03 | 54.06 |
| 5b | 32x32 | Original & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A |  | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 2127 | 15 | 0.005 | 31.91 | 23.76 | N/A | 1.03 | 55.67 |
| 5c | 32x32 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A | 5649 | Original//Original//N.A | 709 | 15 | 0.005 | 42.03 | 16.64 | N/A | 1.68 | 58.67 |
| 5c | 32x32 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A | 5649 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //NA | 2127 | 15 | 0.005 | 36.57 | 17.91 | N/A | 1.68 | 54.48 |
| 5c | 32x32 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A | 5649 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 2836 | 15 | 0.005 | 37.94 | 17.59 | N/A | 1.68 | 55.53 |
| 5d | 128x128 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A | 5649 | Original//Original//N.A | 709 | 15 | 0.005 | 21.29 | 29.61 | N/A | 9.58 | 50.91 |
| 5d | 128x128 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A | 5649 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //NA | 2127 | 15 | 0.005 | 27.12 | 23.41 | N/A | 9.58 | 50.54 |
| 5d | 128x128 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //N.A | 5649 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 2836 | 15 | 0.005 | 25.66 | 24.96 | N/A | 9.58 | 50.63 |
| 5e | 32x32 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 4554 | Original//Original//NA | 709 | 15 | 0.005 | 53.73 | 0 | N/A | 1.32 | 53.73 |
| 5e | 32x32 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 4554 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 2127 | 15 | 0.005 | 53.73 | 0 | N/A | 1.32 | 53.73 |
| 5e | 32x32 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 4554 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 2836 | 15 | 0.005 | 0.07 | 45.98 | N/A | 1.32 | 46.05 |
| 6a | 32x32 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 6072 | Original//Original//Original | 763 | 15 | 0.005 | 21.62 | 27.52 | 2.09 | 1.75 | 51.24 |
| 6a | 32x32 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 6072 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 15 | 0.005 | 4.98 | 7.47 | 5.59 | 1.75 | 18.04 |
| 6a | 32x32 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 6072 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 15 | 0.005 | 9.14 | 12.48 | 4.71 | 1.75 | 26.34 |
| 6b | 128x128 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 6072 | Original//Original//Original | 763 | 15 | 0.005 | 7.10 | 6.40 | 0.04 | 11.55 | 13.54 |
| 6b | 128x128 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 6072 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 15 | 0.005 | 8.03 | 5.59 | 5.41 | 11.55 | 19.04 |
| 6b | 128x128 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 6072 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 15 | 0.005 | 11.33 | 8.97 | 4.94 | 11.55 | 25.26 |
| 6c | 32x32 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 4554 | Original//Original//Original | 763 | 15 | 0.005 | 0 | 0 | 7.07 | 1.06 | 7.07 |
| 6c | 32x32 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 4554 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 2289 | 15 | 0.005 | 0.04 | 0 | 7.07 | 1.06 | 7.12 |
| 6c | 32x32 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 4554 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop | 3052 | 15 | 0.005 | 0.03 | 0 | 7.07 | 1.06 | 7.11 |
| Images from growing season “medium” | 7a | 32 x 32 | Original//Original//N.A | 666 | Original//Original//N.A | 333 | 15 | 0.005 | 57.00 | 0 | N/A | 0.2 | 57.00 |
|  | 7a | 32 x 32 | Original//Original//N.A | 666 | Original//Original//N.A | 333 | 30 | 0.005 | 47.74 | 15.31 | N/A | 0.4 | 63.06 |
|  | 7b | 32 x 32 | Original & 200x200 pixels center crop// Original & 200x200 pixels center crop //N.A | 1998 | Original//Original//N.A | 333 | 15 | 0.005 | 57.00 | 0 | N/A | 0.36 | 57.00 |
|  | 7b | 32 x 32 | Original & 200x200 pixels center crop// Original & 200x200 pixels center crop //N.A | 1332 | Original//Original//N.A | 333 | 30 | 0.005 | 41.74 | 21.02 | N/A | 0.7 | 62.76 |
|  | 7b | 32 x 32 | Original & 200x200 pixels center crop// Original & 200x200 pixels center crop //N.A | 1332 | 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop //NA | 999 | 15 | 0.005 | 42.34 | 13.61 | N/A | 0.7 | 55.95 |
|  | 7b | 32 x 32 | Original & 200x200 pixels center crop// Original & 200x200 pixels center crop //N.A | 1332 | Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // Original & 200x200 pixels center crop & 200x200 pixels bottom left crop & 200x200 pixels bottom right crop // NA | 1332 | 15 | 0.005 | 42.19 | 15.46 | N/A | 0.7 | 57.65 |