

TABLE III Diagnosis Result of Increasing Wheat Diseases on the Three Schemes

<i>Color feature</i>	<i>Powdery mildew</i>	<i>Stripe rust</i>	<i>Leaf rust</i>	<i>Ye Kubing</i>	<i>yellow dwarf</i>	<i>yellow mosaic</i>	<i>Average accuracy rate</i>
I	13	7	13	13	5	1	63.81%
II	14	12	11	13	5	5	71.43%
III	14	7	5	13	5	3	59.05%

Comparing with TABLE II and TABLE III, the three schemes have higher accuracy rate while recognizing 4 disease samples, but drop significantly while using 6 disease samples. This is because less disease parameters lead to similar features of different diseases that can not effectively distinguish more diseases. More feature parameters, such as shape and texture of the disease, should be added to recognize more diseases.

IV. Conclusions

By using the computer vision technology, a diagnosis algorithm of wheat disease is proposed based on color feature and RBF SVM. Experimental result shows that the diagnosis of the wheat disease using color feature achieved good result. Among the three schemes of disease parameters, normalized R, G, B is the best scheme, with the average accuracy rate up to 96%.

In order to improve the applicability of the algorithm, further improvement is needed, especially shape and texture features of the disease should be added to achieve more reliable diagnosis.

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