Evaluation of big onion bulbs size grading machine

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Improvement of quality and value addition in agricultural produce has gained higher concern in Sri Lanka in recent times due to creation of new opportunities for sale of agricultural commodities in open market at competitive prices. Grading in equal sizes in agricultural product as value adding techniques is also become even more important in the future, the price of many agricultural produce varies significantly according to uniformity in size. Uniformity in size not only makes the produce more attractive to consumers but also improve its processing qualities. At present, size grading of most crops are carried out manually by collectors, whole sellers and retailers, farmers market their product without grading. In Sri Lanka, persons engaged in post harvest handling of crops have less chance to use high cost grading. To overcome these problems, institute of post harvest technology attempted to develop low cost grading machine for size grading of big onion bulbs. Hence, this research was focused to optimize and evaluate size grading machine for its size grading performance. Developed big onion size grading machine was tested for grading quality/efficiency of bulbs and results have been shown that maximum grading quality of small, medium and large size were 84.47%, 93.46% and 90.14 respectively. Optimized machine adjustments were obtained for maximum grading quality, i.e. incline angle of 3o and rotating speed 15 rpm of grading cylinder. The capacity of the grading machine under the optimum operating condition was 630 kg/hour. Hence size grading machine is suitable for grading big onion bulbs at medium and large scale.