

Title A groundnut grader for developing countries
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Abstract

The size and density of two commonly available groundnut varieties were measured. Based on these physical properties, a screen-type electric powered groundnut grader was developed. The grader consists of the main frame, separating unit, seed outlet unit, screens, cam, shaft, electric motor and hangers.

The density of variety one groundnut (Hausa breed) was estimated to be 760 kg/m³ while the variety two – variety B (Yoruba breed) was 710 kg/m³. The sizes of variety one (A) were 16.9mm, 11.1mm and 7.1mm for large, medium and small seeds respectively, and that of the second variety (B), were 14.9mm, 9.5mm and 7.3mm for large, medium and small seeds respectively.

The performance evaluation of the grader was carried out in respect of grading efficiency and estimated capacity using the commonly available groundnut varieties. The results show the grading efficiency of 87% and 89% for variety A and B respectively. The capacity of the grader for the two groundnut varieties varied between 16 kg/hr and 20 kg/hr, depending on the feed rate. The cost of production of the machine was estimated as one hundred and eighty one US dollars (\$181).