ROOT QUALITY CHARACTERIZATION
OF THE CASSAVA CORE COLLECTION IN THAILAND

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INTRODUCTION
Cassava (Manihot esculenta Crantz) is one of the most important economic crops in Thailand. Cassava plantation in Thailand is about 1.2 million hectares and root production is about 2.6 million tons. The products in term of cassava chips, starchy and starch are mostly exported to many countries in Europe and Asia, value at 20,000 million bhat a year. The harvest of starch is used for domestic consumption, food, paper, textiles, plywood, medicines and treacum. Recently, cassava roots are also used for ethanol production because of various utilization quality of roots and starch which is the raw materials for each product should be concerned. Through the collaborative agreement between CIAT in Colombia and the Department of Agriculture of Thailand, CIAT has sent in tissue culture to Thailand the 300 accesses of the cassava core collection. In order to make the best use of the core collection we have set up a database for the most important characters.

MATERIALS AND METHODS
In 2006, 157 accesses were planted at Rangsit Field Core Research Center and harvested after 12 months. The starch content (by Reichmann scale balance), percentage of peel, moisture content, and total dry matter in the fresh roots were determined. Cassava starch was extracted from 5 kilograms fresh roots and analyzed for amylose content and viscosity properties of 6% starch. For nutritional and edibles characters, the color and flavor of the cooked root parenchyma were evaluated and the nutrition content: protein, P, K, Ca, Mg, Fe, Mn, Cu, and Zn were analyzed in dried pup. The remaining accesses are now being planted in the field and will be evaluated in 2008 and 2009.

RESULTS AND DISCUSSION
The starch content of 157 accesses varied from 0.8-27.2%. Peel contents of the fresh roots varied from 28-1,685 mg/kg, the amylose content of the starch varied from 19.2-31.1%, the pasting temperature from 86.6-72.6°C, the peak viscosity of the 6% starch paste from 448-1,029 BU, the roll paste viscosity from 50-765 BU, and the breakdown from 501-794 BU. Concerning nutritional characters, the color of the cooked root parenchyma varied from pure white to bright yellow. The protein content varied from 0.72-3.2%, the P content from 0.075-0.27%, the K content from 0.003-2.619%, the Ca content from 0.026-0.301%, the Mg content from 0.095-0.352%, the Fe content from 0.046-0.148 ppm, the Mn content from 1.16-23.47 ppm, the Cu content from 5.6-21 ppm, and the Zn content from 21.24-88.71 ppm.

CONCLUSIONS
The quality of the roots is very important characters. The results indicated that there were variations in each character of the 157 accesses, especially in starch content, color, cyanogen content and starch viscosity. Knowing the root quality of each accession can help breeders to identify and select the best parents in breeding for quality specification objectives. Furthermore, it also taken time to get the new variety.