

Mapping of Coffee Quality in Nicaragua According to Regions, Ecological Conditions and Farm Management

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SUMMARY

Over the production cycles of 2001 and 2002, surveys of around 1000 farms were undertaken in the main coffee producing regions of Nicaragua to relate coffee biochemical composition and beverage characteristics to geographical origin, ecological conditions and farm management practices. At the peak of harvest, a sample of mature coffee berries was collected from each coffee farm and samples were wet-processed uniformly. Bean size and the percentage of defects were assessed. For the 2001 production cycle, coffee tasting was performed at the laboratories of UNICAFE in Nicaragua and CIRAD in France to compare evaluation results. Green bean samples were also analyzed for their biochemical composition by Near Infra-Red Spectroscopy (NIRS).

This study highlights differences between coffee regions for bean biochemical composition evaluated by NIRS. This technique allows for the discrimination of coffees according to their regional provenance and could be used to certify the geographical origin of coffee in Nicaragua. These results also show that caffeine content is not affected by altitude. On the other hand, bean size increases while the percentage of defects decreases with increasing altitude. Trigonelline and chlorogenic acids content increase with decreasing altitude. Bean sucrose concentration and beverage acidity increase with increasing altitude. Coffee beverage from the lowland Pacific regions was bitter than that originating from higher altitudes. Consequently, coffee of the high altitude zones of Northern Nicaragua is characterized by higher acidity, low bitterness and is preferred by the tasting panels. Although less acid, some coffees originating from low areas of the Pacific regions present good cup quality.

Effects of plantation productivity and shade could be not detected in this study, mostly due to the fact that productivity was low and shade was very uniform in all regions. Organically grown coffee results in higher quality than intensively and low-inputs managements.

Due to the particular flavor and quality of the coffee beverage, some distinct areas in the Northern regions of higher altitude as well as a few areas in the Pacific regions appear to be promising to initiate work on agricultural norms and geographical delimitation to develop labels of appellation of certified origin.

Finally, some recommendations were provided to the Nicaraguan coffee sector in order to improve its coffee marketing strategies such as maintaining coffee separate according to

production origin, better documenting the distinct beverage attributes of each production zone and channeling coffees to the most appropriate markets.