Ideas for group discussion / exercises - Section 4
‘HACCP and its application to the coffee chain’

Activity 2 - Applying food hygiene and HACCP principles to the coffee chain

Target group:

Staff of the national coffee institute and senior staff from coffee extension departments, already briefed on the importance of hygiene practices in the coffee process (e.g. the workshops for Section 1), Knowledgeable of the processes and practices of most stages of the national coffee chain and well-versed in the Codex General principals of food hygiene and their application to the coffee chain (materials and workshops covered in Section 3).

Format:

A three-day workshop with field visits as necessary.

Main objective:

To experience and appreciate the principles and process of HACCP in action.

Resources:

Presentations 4.2 to 4.12 and related handouts; HACCP expert; coffee scientist and coffee processing expert.

Working group exercises:

A realistic coffee processing or handling scenario is assigned to each of the working groups. A number of examples of realistic scenarios based on common practice in different countries are provided in ‘Coffee Scenarios’ below for guidance in preparing new scenarios or to be used directly. Each working group carries out the following three exercises utilising the scenario that they have been assigned.

- Exercise 1
  Form the HACCP team, determine the experience and expertise required on the team; describe the product, identify its intended use, define raw materials and other ingredients, and prepare the flow diagram of the process.
Exercise 2
Identify all hazards associated with the process, analyse the hazards, and identify the critical control points.

Exercise 3
Establish critical limits, elaborate systems of monitoring and verification, and outline the documentation requirements for the process.

Coffee Scenarios

Coffee scenario 1: Arabica grown in full sun

Arabica grown in full sun; 2 x 3m planting over 15ha; manual pruning: multi-stem system; soil fertilized/conditioned with worm-treated composted pulp and annual NPK; manual weeding three times per year.

- Harvested by selective picking in three passes plus fly crops as necessary (extremely irregular flowering causes long season)
- Sinking cherries pulped in drum pulper
- Out-sorted, and floating cherries sun-dried separately as cherries on tiled yard
- Parchments immediately washed mechanically
- Initial drying on cement yard with removable roof
- Final drying in silo dryer with kerosene fuel
- Progress of drying checked by biting
- Two weeks on-farm storage before transport to local cooperative
- Sale concluded after three months

Coffee scenario 2: Natural processing of robusta

Robusta grown in irregular shade from banana and various fruit trees; 3 x 3m planting over 1ha; manual pruning: three-stem system, cycle changed every 7 years; soil treated/fertilized with cut weeds, coffee husk, banana leaves and animal manure from farm; manual weeding 3 times per year; animals kept: goats, chickens; mechanical weeding three times per year; irregular ground cover crops: beans.

- Harvested by selective picking in one fly crop plus three passes
- Cherries heaped for 5 days before spreading
- Cherries sun-dried on bare earth yard 5 x 10m at side of house
- Coffee turned twice per day over an expected 14-18 day drying period
- Progress checked by shaking and biting
- Dehusking at local facility followed by one month on-farm storage of the unsorted bulk coffee
- Sold to local trader
Coffee scenario 3: Wet processing of arabica

Arabica grown in regular shade from forest trees including jackfruit, mango, *Ficus* spp and coconut; also *Piper nigr*a on trees; 3 x 3m planting over 15ha; manual pruning: multi-stem system; soil treated/fertilized treatment with cut weeds, coffee pulp, NPK every two years. Farm animal manure; animals kept: chickens; manual weeding three times per year.

- Harvested by selective picking in one fly crop plus three passes plus one ‘gleaning’ (collection of fallen cherries)
- Hand sorting followed by pulping of sinking cherries in disk pulper
- Out-sorted plus floating cherries sun-dried separately as cherries on tile yard
- Parchments fermented 36h dry
- Washing followed by skin drying and sun-drying on tile yard in daily lots
- Progress of drying checked by biting and final determination by weight of standard volume
- Three weeks on-farm storage before trucking to farmers’ association curing marketing facility
- Coffee stored in the form of parchment for three months awaiting sale
- Deal arranged; coffee bulked to provide required amount
- Coffee de-husked (parch removal) and graded (sized) by hand-held screens
- Screen 18 and 17 hand sorted to grade 1
- Defects and small beans re-stored awaiting sale
- Grade 1 re-bagged and trucked to port and stored in dock-side warehousing awaiting loading
- Bags containerised and shipped to Europe

Coffee scenario 4: Natural processing of Robusta II

Robusta coffee grown in irregular shade provided by native forest trees and citrus; 3 x 3m triangular spacing over 2.5ha; pruning: manual, stem and umbrella system; manual weeding required only in limited parts, twice per year; soil conditioned/fertilized with husk plus green and animal manure, occasional [sub-annual] application of NPK; small second farm produces rice in three crops per annum, which is processed at coffee farm; pigs and goats kept in an enclosure in the orchard.

- Harvested by ‘selective stripping’ [removing all cherries from a bearing shoot only if mostly ripe] in three passes
- A proportion of unsorted cherry spread on combination of bare earth and tarpaulin
- A proportion of unsorted cherry split using hand-made splitter yielding a mixture of parchments and parchments in open pulps which is then spread and dried as above
- Coffee turned once per day
- Cherry drying progress normally requiring 18 – 24 days; judged by looking and feeling
- Split cherries normally dried over 8 to 12 days
- Coffee dehusked with a mobile unit within a week of drying
Coffee retained in house [for security] before selling as unsorted bulk coffee to village collector within two months

**Market scenario 5**

- Unsorted green coffee bought from smallholders in amounts from one sack to 1 tonne
- Also bought from other local traders in small amounts
- Blended with other coffees, re-dried in yard in town and re-bagged
- Stored for a minimum of three weeks or until a medium truck load (10MT) has accumulated when it is re-bagged
- Once sold to exporter at the harbour, loaded on medium truck for five-hour trip to the port
- Combined with coffees from other domestic origins and held for 1 month
- Coffee cleaned by gravity table but otherwise unsorted – grade 5
- Containerised in bulk (21MT) and shipped by rail to the port requiring 7 days
- Held dockside in bonded warehouse for one to two weeks
- Shipped to America