|  |  |
| --- | --- |
| Title | **Assure the processing of good quality chillies** |
| Level | **3** | **Credits** | **16** |

|  |  |
| --- | --- |
| Purpose | These competency standards will ensure that the trainee will be able to assure the maintenance of the quality of chillies before, during and after processing |

|  |  |
| --- | --- |
| Classification ISCED | 0811 Crop and livestock production |

|  |  |
| --- | --- |
| Available grade | Competent / Not yet competent |

|  |  |
| --- | --- |
| Modification history | N/A |

|  |  |  |
| --- | --- | --- |
| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
| **E-1:** Check the quality of raw chillies | **Trainee will be able to: P1.** Handle samplers**P2.** Handle sample dividers**P3.** Draw the random samples using appropriate equipment and procedure from the vehicle loaded with chilli bags**P4.** Perform mixing and dividing of primary samples to prepare a composite sample**P5.** Prepare representative and working sample from composite sample**P6.** Label the sample to include the information like date of sampling, sampler name, chilli lot identity etc.**P7.** Seal the sample to intact the condition of sample**P8.** Place the samples properly in laboratory**P9.** Perform the analytical tests such as* Moisture content
* Colour
 | **Trainee will be able to explain:****K1.** Types of samplers**K2.** Handling of samplers**K3.** Techniques of sampling**K4.** Preparation of different types of samples like* Random samples
* Composite samples
* Sub samples
* Working samples

**K5.** Impact of proper labelling**K6.** Procedure of sampling**K7.** Determination of moisture content **K8.** Determination of aflatoxin level **K9.** Determination of pungency**K10.** Separation of foreign matters**K11.** Detection of fungal load |

|  |  |  |
| --- | --- | --- |
|  | * Proportion of damages
* Shrivelled pods
* Foreign matters
* Aflatoxin level
* Pungency
* Fungal load etc.

**P10.** Handle the equipment to perform analytical tests**P11.** Report the results of analytical tests to the immediate and other concerned personnel or departments**P12.** Interpret the results | **K12.** Description of analytical equipment**K13.** Operational procedures for analytical equipment**K14.** Quality characteristics of raw chillies for processing in to a specific type of finished products**K15.** Maintaining the equipment |
| **E-2:** Check and assure the quality of stored chillies | **P1.** Optimize the storage condition at factory level like* Temperature
* Humidity
* Ventilation etc.

**P2.** Maintain the storage condition**P3.** Draw the random samples of stored chillies using appropriate equipment and procedure from the factory store.**P4.** Prepare the composite sample from primary samples**P5.** Make representative and working sample from composite sample**P6.** Label the storage samples properly | **K1.** Optimization of storage conditions**K2.** Maintenance of storage conditions like temperature, ventilation, humidity etc.**K3.** Different procedures of sampling**K4.** Use of appropriate equipment for sampling**K5.** Drawing, preparation, mixing and sub division of different samples such as primary sample, composite sample, representative sample and working sample**K6.** Labelling the sample appropriately**K7.** Assurance of quality parameters**K8.** Maintenance of record of each sample at the time of storage |

|  |  |  |
| --- | --- | --- |
|  | **P7.** Determine the frequency of sampling to assure the proper storage**P8.** Handle the raw and processed chillies under storage for quality assurance**P9.** Check the quality of stored chillies by analysing the parameters such as* Moisture content
* Colour
* Proportion of damages
* Shrivelled pods
* Foreign matters
* Aflatoxin level
* Pungency
* Fungal load etc.

**P9.** Maintain and assure the traceability of each sample during storage**P10.** Maintain the record of quality assurance of stored chillies**P11.** Report the results to the concerned departments and also able to intimate in case of unusual results |  |
| **E-3:** Check and assure the quality of chillies during processing | **P1.** Draw the samples at different stages of chilli processing**P2.** Maintain the cleanliness of processing machines after every batch**P3.** Check and assure the efficiency of processing machine | **K1.** Maintenance and cleanliness of processing machine**K2.** Efficiency assurance of processing machine**K3.** Assurance of chilli pods cleanliness before processing**K4.** Assuring the ratio of different spices in different recipes |

|  |  |  |
| --- | --- | --- |
|  | **P4.** Assure the cleanliness of chilli pods before processing**P5.** Check the safety measures during processing**P6.** Inspect the presence of any un desirable material like* Hairs
* Metals
* Straws
* Thread
* Rubber band etc.

**P7.** Check and maintain the hygienic conditions of workers in processing area**P8.** Determine the frequency of sampling**P9.** Inspect the whole processing activity at regular intervals**P10.** Check the quality of under process chillies by analysing the parameters such as* Moisture content
* Colour
* Foreign matters
* Aflatoxin level
* Pungency
* Fungal load etc.

**P11.** Report the results to the concerned departments | **K5.** Inspection of safety measures**K6.** Removal of undesirable materials during processing **K7.** Assurance of hygienic condition at processing area **K8.** Inspection of whole processing activity |

|  |  |  |
| --- | --- | --- |
|  | **P12.** Respond at unexpected results |  |
| **E-4:** Check and assure the quality of finished product | **P1.** Draw the random samples of finished product using appropriate procedures**P2.** Prepare representative and working sample**P3.** Label the sample to include the information like date of sampling, sampler name, chilli lot identity etc.**P4.** Perform the analytical tests on the samples of finished product such as* Moisture content
* Colour
* Aflatoxin level
* Pungency
* Fungal load etc.

**P5.** In addition to above mentioned test the trainee will also be capable to perform the test on processed whole chillies such as* Proportion of shrivelled pods
* Foreign matters
* Proportion of damaged pods

**P6.** Handle the equipment to perform analytical tests such as* Weighing balance
* ELISA
* Incubator
* Colony counter
* Magnifying glass
 | **K1.** Knowledge about packaging of chillies**K2.** Importance of packaging**K3.** Tagging/labelling of seeds for identification**K4.** Impact of substandard packaging of processed chillies**K5.** Handling of substandard packed chillies**K6.** Description of substandard packaging chillies* Damaged boxes
* Improper sealing
* Absence or misprinting of manufacturing dates, batch numbers, and expiry dates etc.

**K7.** Hygienic condition of personnel and packaging area**K8.** Calibration of packaging machines**K9.** Checking and inspection of weight on completion of packaging**K10.** Proper stacking of packed material**K11.** Importance of proper shifting of packed material to the store**K12.** Storage requirements of the finished product |

|  |  |  |
| --- | --- | --- |
|  | Microscope etc.**P7.** Examine the proper sealing and packaging of finished product**P8.** Examine the substandard packed chillies**P9.** Examine the personnel hygiene of workers in packaging area**P10.**Maintain and calibrate the metal detector**P11.**Handle undesirable material detected by metal detector**P12.**Segregate and label different chilli lots carefully**P13.**Check the labelling details such as* Batch number
* Manufacturing date
* Expiry date
* Retail price
* Net weight
* Company monogram etc.

**P14.**Shift the packed and processed material with care**P15.**Storage of packed and processed materials before marketing**P16.**Maintaining the hygienic conditions of stores for processed material | **K13.** Storage of packed material**K14.** Importance of keeping the hygienic conditions of packed materials store**K15.** Difference between storage of exportable packed chillies and chillies intended for local marketing**K16.** Safety measures during packaging |
| **E-5:** Maintain the general laboratory standards | **P1.** Avoid following* Smoking
* Eating
* Drinking

**P2.** Avoid gathering of unauthorized persons in laboratory**P3.** Prepare and maintain the record of followings* Chemicals
* Equipment
* Accessories
* Calibration
* Test reports

**P4.** Meet the requirements during specific tests. For example wear lab coat, gloves and mask during aflatoxin analysis**P5.** Assist the main analyst**P6.** Keep the glassware including beaker, flask, pipette, cylinder etc. carefully**P7.** Use glassware where needed**P8.** Follow the precautionary measures for instrument handling**P9.** Keep the operational and maintenance manuals of equipment in a proper place**P10.**Maintain the conditions of laboratory (like temperature, dust free etc.) required for equipment | **K1.** General Laboratory standards**K2.** ISO 17025 standards**K3.** Description of different glassware such as* Cylinder
* Beaker
* Flask
* Pipette etc.

**K4.** Handling and keeping of glassware**K5.** General precautionary measures that must be kept in mind while handling the sophisticated equipment**K6.** Laboratory conditions to be maintained for proper functioning of equipment**K7.** Impact of smoking on the laboratory functioning**K8.** Impact of usual habits that are restricted in laboratory on the analytical work and results**K9.** Impact of substandard environmental conditions on the equipment performance, analytical results and others**K10.** Proper placement and procedure for glassware and equipment accessories in the lab |