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

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| 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 |

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| Classification ISCED | 0811 Crop and livestock production |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

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| **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 |

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|  | * 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 |

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|  | **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 |

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|  | **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 |

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|  | **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 |

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|  | 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 |