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Abstract Abstract Comparative analyses of metal pollutants trans-bioaccumulation in *Chrysichthys nigrodigitatus* and *Sarotheredon melanotheron* organs and tissues from Porto-Novvo Lagoon was carried out during rainy and dry seasons. The mean range of all metal pollutants found in the tissues and organs between July and June are given. Laboratory and statistical analyses conducted on metal pollutants bioaccumulations in the organs and tissues of the test animals shows that *Sarotheredon melanotheron* had the highest means values of metal pollutants bioaccumulation than *Chrysichthys nigrodigitatus* due to its filter feeding ability and the bio accumulation of these metal pollutants in the test animals are above regulatory permissible limits. It is therefore recommended that S. Abstract Abstract The plant *Carica papaya* Linn. It is a large perennial herb with a rapid growth rate. Caricaceae is an important medicinal plant. The study investigated the photochemistry and acute toxicity study of hydromethanolic leaf extract of *Carica papaya* Linn. Preliminary phytochemical analysis of the plant extracts revealed the probable presence of tannins, flavonoids, saponins, alkaloids, carbohydrates, anthraquinones and terpenoids. Quantitative phytochemical analysis of the plant showed the concentration of alkaloids as 0. The acute toxicity LD50 of the hydromethanolic leaf extract of *Carica papaya* Linn. The acclaimed anti-diarrhoeal activity and other medicinal properties of *Carica papaya* Linn could be due to the presence of the phytochemical constituents and particularly alkaloids and flavonoids. Abstract Abstract The larger grain borer, *Prostephanus truncatus* is one of the major insect pests of maize in storage. One of the age long methods of controlling this pest is the use of synthetic insecticides. However, synthetic insecticides are costly and are not environmentally safe due to the persistence of some of their components in the environment. The use of insecticides of plant origin is an alternative to synthetic insecticides as they easily biodegraded and available within the reach of farmers. This study therefore evaluated the efficacy of leaf powders of *Chromolaena odorata*, *Tithonia diversifolia*, *Theobroma cacao*, *Azadirachta indica*, *Citrus sinensis* and bee propolis powder at managing the population of the Larger Grain Borer LGB , *Prostephanus truncatus* on maize grains in storage. One hundred grams of clean uninfested maize, variety Swan-1 were weighed into cm<sup>3</sup> jars using Metler weighing balance. The treated grains were separately infested with 10 pairs of days old adult P. The treatments were replicated three times and arranged on work table in the laboratory using a Completely Randomized Design. The results showed that the untreated grains control had a significantly P Keywords: The main objective of the study was to evaluate the efficacy of naturally occurring products in controlling the woolly apple aphid in apple orchard at Holeta, Ethiopia. Woolly apple aphid WAA , *Eriosoma lanigerum*, is an important insect pest of apples in Holetta agricultural research center apple orchards and in other apple-growing areas of the country. Aqueous extracts of different botanicals, bio-pesticides, entomopathogens and insecticides were screened against WAA. The experiment was laid out in randomized complete block design with three Replications. The highest and lowest WAA colony and aphid per colony were recorded from the untreated plots and standard insecticide Pirimor 50 DG , respectively. WAA colony and aphid per colony in botanicals, bio-pesticides, and entomo-pathogenic treatments were intermediary between the standard and the untreated check. Entomo-pathogenic fungi and Bt that are indispensable natural biological control agents of many insects both at field and storage condition. This studies lead to the conclusion that woolly apple aphid problem in apple orchard not at nursery conditions entomopathogens and plant based extracted pesticides can be a safer and effective alternative for WAA management which is simple to prepare and apply. Spraying apple tree by Neembicide or Berbera seed extracted solution slows the infestation and also environmentally friend and not harmful to beneficial insects; alternative pollinators. Generally, these synthetic insecticides have tremendous impact on Natural enemies and beneficial insects as well as on environmental side effect. Digestibility-trial and carcass evaluation carried-out at the end of feeding-trial. Abstract Abstract The study was conducted to assess the impacts of altitude and

slope on carbon stock and soil properties on the slopes of Gra-kahsu national forest priority area. Above and below ground carbon allometric equation, organic carbon Walkely-Black, PH 1: Analysis of one way using R-software was used to analysis the mean of carbon stock pools and soil properties across the altitudinal gradients and slopes. The upper altitudinal class of the study area had better carbon stock than the rest classes due to the presence of high diameter at breast height. The distribution of carbon stocks with each sample quadrat in litter, herb, above ground and below ground carbon pools was found positively correlated and had significant differences with altitude. However, positively correlated and had non-significant differences in litter, dead woody carbon and soil organic carbon pools with slope was found. Except organic carbon percentage, soil organic matter and total nitrogen, all considered soil properties showed non-significant differences among the three-altitudinal class. The differences may be attributed to leaching and differences in organic matter carbon contents within the soil profiles due to altitude. The current study shows that carbon stock value, soil properties of study area was highly affected by environmental factors such as altitude, and slope. Nevertheless, altitude was the only factor that showed significance difference in carbon stocks of the study area.

Abstract Abstract Ethiopia is the homeland and center of genetic diversity of Arabica coffee *Coffea arabica* L. Cup quality determines the relative price as well as the usefulness of a given quantity of coffee. Eighty eight accessions of *Coffea arabica* L and five standard checks were tested at Tepi National Spice Research Center during the growing season. The aim of the study was to find out heritability, variance components, variability and genetic advance based on 8 cup quality traits. Analysis of variance showed that very high significant P

Keywords: A Review Wakuma Biratu Abstract Abstract Least cost pre-cooling and storage technologies are an intricate and essential part of the proper temperature management of perishable crops for long lasting and maintain quality at a high level. These technologies include Hydro-cooling, vacuum cooling, room cooling, icing and forced air cooling. In accordance, different post-harvest pre-cooling and storage treatments were applied for different fruit and vegetables. Tomato subjected to air cooling for 24 hours, hydro cooling with raw water for 45 min, hydro cooling with ice water for 30 min and hydro cooling with ice water and CaCl<sub>2</sub> for 30 min. Hydro-cooling with ice water samples gave best results for density with a 4. Despite of these least cost cooling and storage technologies are applicable even for small scale farmers to extend the shelve life and maintain the inherent quality of Horticultural crops, farmers have no awareness of these technologies, thus it is important to focus on construction of this technologies, demonstration of how it function in comparison with the conservative methods of storing and cooling of perishable crops.

Abstract Abstract In the southern rangelands of Ethiopia, most of the feed that livestock utilize predominantly originates from natural pasture, which comprised natural grasses, browse and bushes. Utilization of crop residues from cultivable land is negligible. However, livestock in the rangeland areas experience large seasonal fluctuations in feed quantity and quality during the dry seasons. Drought, shortage of rain, overgrazing and bush encroachment including insufficient grass growth and overpopulation are the major factors contributing to feed shortage in that order. Conservation in the form of standing hay is the most popular followed by some hay making and standing hay plus crop residues while the least forms of feed conservation is crop residues. The productivity of forages changes from time to time depending upon the rainfall, soil, grazing intensities and other associated factors. As a result, the potential carrying capacity changes over time. The Borana have the view that the condition of the range is declining as a result of both increased livestock and environmental degradation. Borana household members and elders bitterly reported the increasing populations of acacia species as well as other less palatable, unpalatable and poisonous plant species in the rangelands. Woody vegetation reduces grass cover through increasing the competition for available water and nutrients and reducing the light reaching the grass layer. However, some bushes and trees provide leaves and pods for tree browses in the dry season. These are good feed for camels and goats, somewhat for sheep and cattle to a lesser extent. The recent increasing trend for households to keep a relatively high number of goats, sheep and camels indicates the response of the Borana to increased bush encroachment. The Borana households and elders indicated that the over utilization and depletion of their range environment has resulted in several negative outcomes. These include shortage of feed and water, livestock diseases, low animal productivity and livestock losses which in turn had resulted in unusual

migration, starvation, poverty and human suffering. Therefore, interventions in the southern rangelands are needed to promote sustainability of the traditional social order as well as ecological sustainability of livestock production. Abstract Abstract This activity was conducted from during off season with the objective of demonstrating improved vegetable crops with production small scale drip irrigation by using participatory approach to women farmers which was conducted in Robi Gebeya Welemera District in Finfine surrounding special zone of oromiya regional state in Ethiopia. As a finding from the total demonstrated vegetables tomato beats by all evaluation parameters followed by hot pepper and cabbage while the other are less preferred. Demonstration, Improved technology, Vegetable, Irrigation.

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