### Project Title:
Selection of maize hybrids, composites and synthetics for fodder quality to mitigate climate change

<table>
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<tr>
<th>Annual Report</th>
<th>Period Covered: October 2020- September 2021</th>
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<tr>
<td>KCSAP livestock Applied</td>
<td>Value chain: Pasture and fodder</td>
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<th>Lead Institution:</th>
<th>KALRO</th>
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| PI and contacts (email and mobile number): | Bornface Juma Awalla jumawalla@yahoo.com bornface.awalla@kalro.org |

### Collaborators and their contacts:
1. Dr Dickson Ligeyo KALRO Kitale

### Background
Over time, KALRO has produced numerous maize varieties specifically for food. Among the many varieties produced over the years, only one has been recommended as animal feed i.e KH 500-43A which is a medium altitude variety. With the onset of climate change, it is imperative to increase the genetic base of the varieties that can be used as animal feed without compromising other important qualities. This project seeks to select maize hybrids and composites with quality fodder traits in different ecological zones to mitigate against climate change impact especially lack of feed during the dry seasons.

### Objectives
1. Select KALRO hybrids, composites and synthetics with best fodder qualities in the target AEZs.

### Expected Outputs
1. Increase in number of KALRO quality maize hybrids, composites and synthetics used as fodder from currently 1 to 5.

## ANNUAL REPORT

### ACHIEVEMENTS

#### Objective 1:
Select KALRO hybrids, composites and synthetics with best fodder qualities in the target AEZs.

#### Activity 1.1 (state the activity and what was to be done as planned)
Collection and assembly of KALRO maize hybrids and composites from centres and seed companies.

#### Achievement 1.1: (Briefly give the achievements against what was planned)
Sixteen KALRO varieties representing 2 agroecological zones i.e High altitude and medium altitude acquired assembled from different sources. These were: KH 600-26A, KH 600-16A, KH 600- 11D, KH 600-27A, KH 600-20A, KH 600-23A, KH 600-22A, KH 600-25A, KH 600- 21A, 614D, KH 500-22A, KH 500-43A, KH 500-52A, GAF4, Kksynthetic2 and KSTP 94.
A total of 21 composites and 11 synthetics were also collected making a total of 48 experimental samples.

**Activity 1.2:** - Land preparation in all sites  
**Achievement 1.2**  
There was timely land acquisition and preparation. An accumulated total of 3 acres was cultivated in both Kitale, Kakamega and Alupe centres.

**Activity 1.3 Planting in the two three sites**

**Achievement 1.3:** The 16 hybrids, 21 composites and 11 synthetics were planted in the three targeted AEZs. Each site had the 48 samples planted with a total of 144 observation established.

**Activity 1.4: Weeding and first data collection**

**Achievement 1.4:** First and second weeding was done and initial data collection commenced. The number of tillers, number of leaves, number of plants per hill and plot, leaf width, leaf length and stem girth were recorded. Data were taken on specific ecological maize including green leaf spot (GLS), maize streak virus (MSV) and Maize lethal necrosis (MLN). Other parameters which were recorded included standard juvenile genotypic and morphological parameters.

**Activity 1.5: Second data collection**

**Achievement 1.5:** During the sixth week, the following data parameters were scored; leaf length (cm), leaf width (cm), stem girth (diameter), number of leaves per plant and tiller number. This also included other standard genotypic data and morphological data.

**Activity 1.6: Third data collection and harvesting**

**Achievement 1.6:** During the third data collection, the following parameters were scored; leaf length (cm), leaf width (cm), stem girth (diameter), number of leaves per plant, tiller number, number of green leaves at maturity, number of dead leaves at maturity, total plant biomass (kg), leaf biomass (kg), dry matter (kgs) preceding 24 hours oven drying and grain yield.

**II Other achievements**

- 2 Technical reports submitted to the KCSAP secretariat  
- Selection of Kenyan maize hybrids for fodder quality- Paper in writing stage while waiting for second season data.  
- Selection of maize composites and synthetics for fodder quality in Kenya- Paper in writing stage awaiting second season data.

**III Constraints and how they were overcome**

i. Late rains which delayed the planting season and data scoring in the three sites.  

ii. Difficult transport logistics led to hiring of vehicles for the timely implementation of field activities.  

iii. Fall army worm infestation in all the three fields which was overcome by timely spraying using suitable insecticide (Escort).
IV  Summary of funds received, accounted for and balance

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<tr>
<th>Project Amount (KES)</th>
<th>Amount Received (KES)</th>
<th>Amount accounted for (KES)</th>
<th>Balance (KES)</th>
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<tbody>
<tr>
<td>1,700,000</td>
<td>620,100</td>
<td>620,100</td>
<td>Nil</td>
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IV  Way Forward
Activities Planned for the Period Oct 2021-June 2022
1. Second season land preparation in all sites
2. Second season planting in the three sites
3. Weeding and first data collection for the three sites
4. Second data collection for season 2
5. Third data collection and harvesting
6. Finalize paper writing
7. Prepare final project report