**Activity 2: Selection from segregating population across major agroecologies (Ousmane Boukar)**

1. Objective of activity and intended output (1-2 sentences)

The objective of this activity is to develop aphid resistant cowpea breeding lines. Our intended output is to develop improved aphid resistant breeding lines.

1. Materials and methods (very brief and succinct, 3 sentences at the most)

A wild cowpea relative TVnu 1158 was identified three years ago and crossed to two cultivated lines IT99K-573-1-1 and IT98K-556-6. A total of 244 F9 Recombinant Inbred lines (RILs) from TVnu 1158 x IT99K-573-1-1 were obtained and screened for aphid resistance while F3 generation from TVnu 1158 x IT98K-566-6 was advanced to F4. Given the quantity of seeds, screenhouse screening was conducted on the RILs using the box screening technique (Souleymane et al., 2013).

1. Results and interpretation (again succinct, maximum of 250 words).  Include data in the form of graphs, tables or pictures.

The first set of 244 RILs were phenotyped late 2015 and 44 RILs showing moderate to high level of resistance were identified. These were further screened this year. Highly significant difference of aphid population was noted between the tested entries. Aph 1-68, Aph 1 – 101, Aph1-12, Aph1-216, Aph 1 – 89, Aph1-7, TVNu1158 and Aph 1-61 showed few aphid population recording 3.0, 6.5, 6.8, 7.0, 8.1, 8.2 and 9.1 aphids per plant respectively (Fig.2).

Seeds for F5 generation of TVNu 1158 x IT98K-566-6 are now available for planting. We plan to have F7 generation during year 2017.

Fig.2: Average number of aphids per plant from 5 consecutive counting per plant

1. Next steps (1-2 sentences)

 Identified RILs resistant to aphid will be tested in Initial evaluation trial this year. Lines with higher grain yield will be considered further for preliminary trials or entered into crossing nursery to improve the yield potential. The F7 recombinant inbred lines from the second cross will be phenotyped for their reactions to aphid infestation in the seedling stage.

References

Jackai L.E.N. and Singh S.R. 1988. Screening techniques for host plant resistance to insect pests of cowpea. *Trop Grain Legume Bull* 35: 2–18.

Souleymane A., Aken’Ova, M.E., Fatokun C.A., and Alabi O.Y. 2013. Screening for resistance to cowpea aphid (*Aphis craccivora* Koch) in wild and cultivated cowpea (*Vigna unguiculata* (L.) Walp.) accessions. *Int. J. Sci. Environ. Technol.* *2:* 611-621.