“Developing alternative animal protein resources for poultry by using black soldier fly larvae”

Progress Report

January 22nd, 2019

Submitted by:

Biplov Sapkota

Team Leader

Contact: 9845582552

Email: bplv624@gmail.com

Project title:

Developing alternative animal protein resources for poultry by using black soldier fly larvae

Research Team:

Biplov Sapkota, B.V.Sc. and A.H., 7th semester, AFU (Team Leader)

Anish Sapkota, B.V.Sc. and A.H., 9th semester, AFU

Aashish Subedi, B.V.Sc. and A.H, 7th semester, AFU

Rahul Acharya, B.Sc. Ag., AFU (Graduated)

Research Supervisor:

Asst. Prof. Dr. Shanker Raj Barsila

Department of Animal Nutrition, FAVF, AFU

Responsible organization:

Directorate of Research and Extension

Agriculture and Forestry University

Rampur, Chitwan

Department of Animal Nutrition

Faculty of Animal Science, Veterinary Science and Fisheries

Agriculture and Forestry University

Rampur, Chitwan

Duration of project:

34 weeks (8 months)

Implication of research

Broiler production on commercial scale

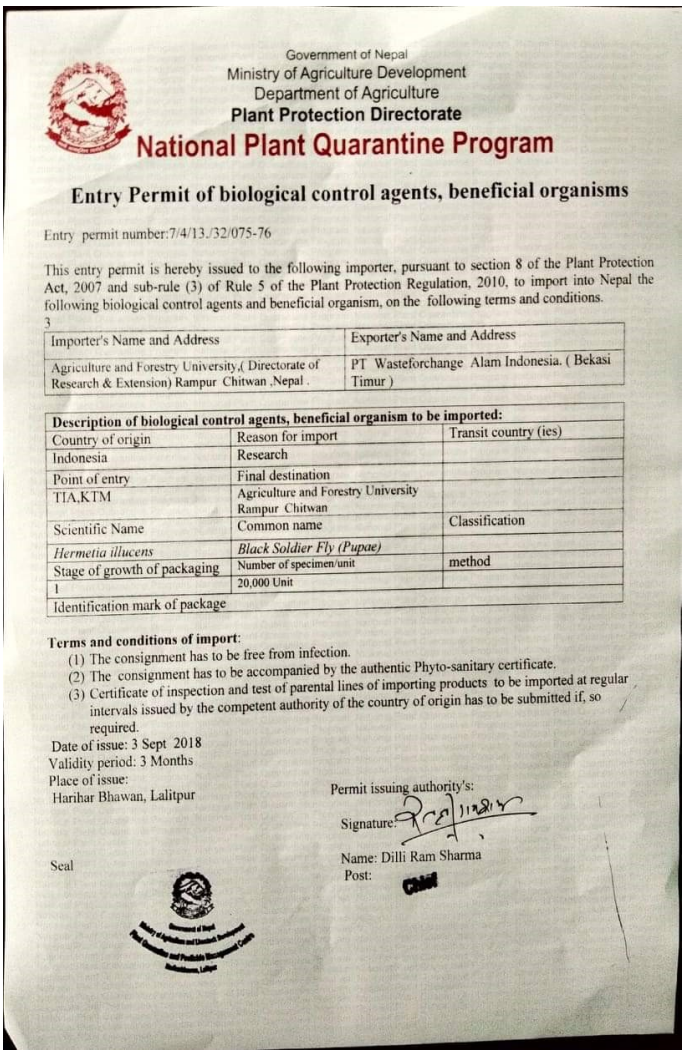
Can be multiplied in layers chicken, fish, pig production etc.

Progress report:

1) Import of BSF Pupae:

After successfully making relevant documents from various offices (University directorates and departments, government offices), an order was placed for BSF pupae. The payment was made to FORWARD (TPST 3R Tempat Pengolahan Sampah Terpadu, Indonesia). The pupae were dispatched from Indonesia and received from the Customs Office. It was then transferred to our research facility at AFU, Rampur.

Tracking ID of the Package: EE187119675ID (package can be tracked via this site: www.gpo.gov.np)



Government of Nepal
Ministry of Agriculture Development
Department of Agriculture
Plant Protection Directorate
National Plant Quarantine Program

Entry Permit of biological control agents, beneficial organisms

Entry permit number:7/4/13./32/075-76

This entry permit is hereby issued to the following importer, pursuant to section 8 of the Plant Protection Act, 2007 and sub-rule (3) of Rule 5 of the Plant Protection Regulation, 2010, to import into Nepal the following biological control agents and beneficial organism, on the following terms and conditions.

3

Importer's Name and Address	Exporter's Name and Address
Agriculture and Forestry University,(Directorate of Research & Extension) Rampur Chitwan ,Nepal .	PT Wasteforchange Alam Indonesia. (Bekasi Timur)

Description of biological control agents, beneficial organism to be imported:		
Country of origin	Reason for import	Transit country (ies)
Indonesia	Research	
Point of entry	Final destination	
TIA,KTM	Agriculture and Forestry University Rampur Chitwan	
Scientific Name	Common name	Classification
Hermetia illucens	*Black Soldier Fly (Pupae)*	
Stage of growth of packaging	Number of specimen/unit	method
1	20,000 Unit	
Identification mark of package		

Terms and conditions of import:
(1) The consignment has to be free from infection.
(2) The consignment has to be accompanied by the authentic Phyto-sanitary certificate.
(3) Certificate of inspection and test of parental lines of importing products to be imported at regular intervals issued by the competent authority of the country of origin has to be submitted if, so required.

Date of issue: 3 Sept 2018
Validity period: 3 Months
Place of issue:
Harihar Bhawan, Lalitpur

Permit issuing authority's:
Signature:
Name: Dilli Ram Sharma
Post: Chief

Seal

Picture 1: Major Legal Paper Required for Import

Picture 2: Ordered BSF Pupae being packaged at Indonesia.

2) **BSF Facility Setup**

Two Isolated housing structures, previously used as poultry farm have been provided by Directorate of Farm, Agriculture and Forestry University for the research. After substantial renovation of farm structures as per our necessity and adoption of necessary biosecurity measures, we were able to set up the interior of the farm.

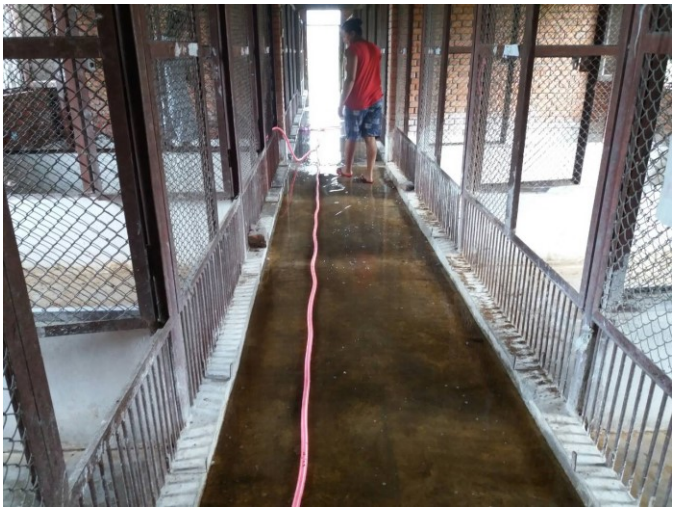
One of the farms has been designed as breeding farm while the other has been designed as larvae production and harvesting unit. Both the farms were cleaned and disinfected completely prior to interior set up. The breeding farm has been partially painted and completely set up with all necessary equipment and supplies. Cage stands (custom made from iron workshop), Love cages and Dark cages (fabricated in garment factory) have all been set up at their respective places. Similarly, electric heaters have been purchased to maintain necessary temperature necessary for proper growth of the Black soldier fly. Plastic trays and other necessary equipment have been purchased and set up at their respected places. The larva production and harvesting unit has also been set up as per plan. Plastic trays have been purchased and set up in respective places.

We also have reached to an agreement with nearby canteens, restaurants and vegetable shops and AFU Livestock farm to supply us necessary organic waste products. Dustbins for the collection of waste have also been purchased.

Flaming the farm for disinfection

Construction of Cage Frame

Ordering Cage



Through Cleaning of Farm Before stocking flies

Ordering Cages

Purchasing Plastic Materials

3)BSF Breeding:

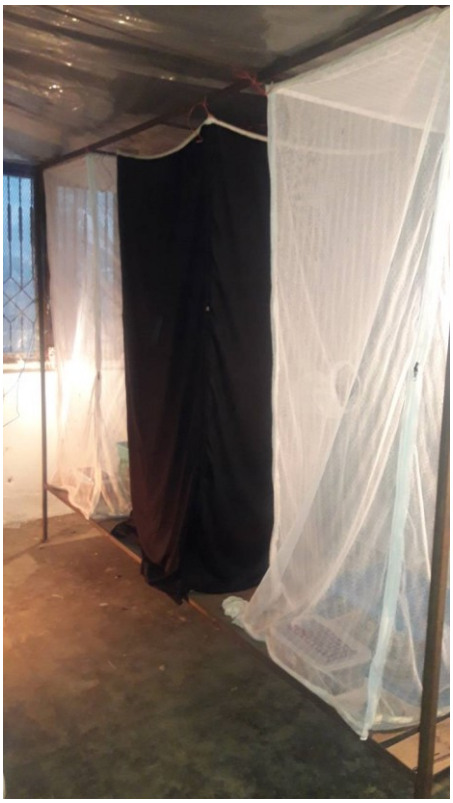
The Black Soldier fly adults have started to emerge out of the pupae. We now have successfully established a colony of Back Soldier fly at our facility. The fly has also started to mate and lay eggs. We are maintaining constant temperature and humidity by continuously running heaters and spraying water mist so that a constant and favorable environment can be provided to the flies. The major point of focus at this point of research is to reach the level of egg production which can sustain demand of eggs for future colonies from the production for our facility itself.

Team of BSF Research Associates

Recording Daily Farm Data

Maintaining Humidity in farm

Colony of Black Soldier Flies



Love Cage and Dark Cage Setup

Two Female flies Laying Eggs in the Eggies

4) Participation in International Poultry Symposium 2018.

We also participated in "International Poultry Symposium 2018" organized jointly by Agriculture and Forestry University, Ministry of Livestock Development, Food and Agriculture Organization/Nepal, Nepal Agriculture Research Council and Michigan State University, USA" from 28-30 October, 2018 (11-13 Kartik, 2075) in Chitwan, Nepal with the theme "Meeting Poultry Demand for Food Safety and Security". It was a delightful experience to have presented three posters in the symposium whose main objective was to provide platform to share knowledge among national and international scientists working in the field of poultry production, education, research, and extension.

We presented a poster entitled "DEVELOPING ALTERNATIVE ANIMAL PROTEIN RESOURCES FOR POULTRY BY USING BLACK SOLDIER FLY LARVAE". Through this poster, we aimed to inform national and international delegates from 10 countries regarding our ongoing research project. The poster was the center of attraction to all delegates and participants,

and received a great deal of appreciation and valuable suggestions. Respected Vice Chancellor of AFU Prof. I.P. Dhakal, Respected Registrar of AFU Prof. Dr. Manaraj Kolachhapati , Respected Dean of FAVF, AFU Prof. Dr. Sharada Thapaliya, and all delegates from Government of Nepal and other INGOs/NGOs were especially supportive and were very happy that National Innovation Center was supporting our project. Almost all observers remarked that our research, if successful, would bring a big change in the poultry and feed industry of Nepal.

The End