# NCERT AWARD - 2017-18

to

## St. Thomas College of Teacher Education

Mylacompu, Thodupuzha, Idukki, Kerala- 685 606

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
National Council of Educational Research and Training
श्री अरविन्द मार्ग, नई दिल्ली-110016
Sri Aurobindo Marg, New Delhi-110016

# प्रमाण - पत्र
# CERTIFICATE

यह प्रमाण पत्र

**डॉ जॉनसन मैथ्यू उप प्रधानाचार्य, सेंट थॉमस कॉलेज आफ टीचर एजुकेशन इडुक्की, केरल** को उनकी नवाचार परियोजना **भावी शिक्षकों के मध्य जैवीक खेती में ए एस के का विकास करना** के लिए शिक्षा में नवाचार पद्धतियों और प्रयोगों पर विद्यालयों और अध्यापक शिक्षा संस्थानों के लिए राष्ट्रीय पुरस्कार: 2017-18 के अंतर्गत प्रदान किया जाता है।

This certificate is awarded to

**Dr. Johnson Mathew Vice Principal, St. Thomas College of Teacher Education Mylacompu, ThodupuzhaIdukki, Kerala** for the Innovative Project **Developing ASK in Organic Farming among Prospective Teachers** under National Awards for Innovative Practices and Experiments in Education for School and Teacher Education Institutions: 2017-18.

| | | |
|---|---|---|
| कार्यक्रम समन्वयक<br>Programme Coordinator<br>अध्यापक शिक्षा विभाग<br>Department of Teacher Education | अध्यक्ष<br>Head<br>अध्यापक शिक्षा विभाग<br>Department of Teacher Education | निदेशक<br>Director<br>एन.सी. ई.आर.टी.<br>NCERT |

**Rev. Dr. Johnson Mathew and Dr. C C. Kurian**
**Presents the Report at NCERT New Delhi**


**Presentation Continues**

**Project Assessment team NCERT New Delhi**

**Members of all teams across the country selected for the final presentation of their NCERT project report**


**Vice Principal Rev. Dr. Johnson Mathew receives the participation certificate in the certificate distribution ceremony at NCERT New Delhi**

**Dr. C. C. Kurian receives the participation certificate in the certificate distribution ceremony at NCERT New Delhi**

# Developing ASK in Organic Farming among Prospective Teachers

*Report of the NCERT Award 2018 won project work done by St. Thomas College of Teacher Education, Mylacompu, Thodupuzha, Idukki, Kerala, India.*


***Chief Coordinator*** **:** **Rev. Dr. Johnson Mathew** *(Vice Principal)*

***Coordinators*** **:** **Dr. C. C. Kurian** *(Associate. Professor)*
**Mr. Francis Nellikunnel** *(Assistant Professor)*
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**St. Thomas College of Teacher Education**
**(Affiliated to M.G University, Kottayam and Under the Management of the Corporate Educational Agency, Diocese of Kothamangalam)**
**Mylacompu, Thodupuzha, Idukki, Kerala- 685 608**

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**Appendices**

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# Developing ASK in Organic Farming among Prospective Teachers

## 1. GENESIS OF THE STUDY

One of the most important things for sustaining life in the world is food. Food is an essential part of everyone's lives. It gives the energy and nutrients to grow and develop, to move, work, play, think and learn and to be healthy and active. The body needs a variety of nutrients such as protein, carbohydrate, fat, vitamins and minerals. All these nutrients one get are from the food he/she eats. So without having food sufficient in quantity and quality one cannot maintain proper health and even life. This importance of food items leads men to think on the needs of producing food materials more in quantity.

***Food is an essential part of everyone's lives. It gives the energy and nutrients to grow and develop, to move, work, play, think and learn and to be healthy and active. The body needs a variety of nutrients such as protein, carbohydrate, fat, vitamins and minerals. All these nutrients one get are from the food he/she eats. So without having food sufficient in quantity and quality one cannot maintain proper health and even life.***

For the increased production of food materials people started to depend largely on the use of chemical fertilizers and chemical pesticides in agriculture. Though the use of such chemicals helped immensely for the increased production of food materials, various serious side effects were also coupled with it.

### Harmful Effects of Chemical Fertilizers and Chemical Pesticides

Use of chemical fertilizers and chemical pesticides continuously for a long time makes various harmful effects on environment, soil, health etc.

### Environmental Effects

Chemical pesticides pollute the air. Studies have shown that they linger in the atmosphere, in the ground and in our waterways even long after the use of it. When chemical pesticides are applied into a surface, they travel outside their intended area of use by air, soil or water. The Agricultural Guide 'Pesticides and Environments' explains that "for certain pesticides to be effective, they must move within the soil, too much movement can transfer a pesticide away from the target

pest. This can lead to reduced pest control, contamination of surface water and ground water and injury of non-target species, including humans".

**Effects on Soil and Crops**

Chemical pesticides not only deplete the nutritional value of our food, but they also contaminate it. Resea-rches have consistently found pesticides residues in third of food, including apples, baby food, bread, cereal bars, fresh salmon, lemons, lettuces, peaches, nectarines, potatoes and strawberries.

***People should reduce their exposure to pesticides because of links to serious illness. Results of this study found consistent evidence of serious health risks such as cancer, nervous system diseases and reproductive problems in people exposed to pesticide.. through home and garden exposure***

**Health Effects**

Pesticides have been linked to a myriad of diseases. The Pesticide Literature Review , which is based on studies conducted by a multi university research team in Toronto, concludes "people should reduce their exposure to pesticides because of links to serious illness. Results of this study found consistent evidence of serious health risks such as cancer, nervous system diseases and reproductive problems in people exposed to pesticides... through home and garden exposure". Similar research has linked exposure to pesticides to increased presence of neurological disorders, Parkinson's disease, childhood leukemia, lymphoma, asthma and more.

In the article 'The Facts about Organic Foods: Having More Vitamins and Minerals Protect You from Chronic Disease' James Cleeton claims that "women with breast cancer are five to nine times more likely to have pesticide residues in their blood than those who do not".

Recognizing the fatal effects of using chemical pesticides and chemical fertilizers, many people have started to leave such items and start to depend on Organic Farming.

**Organic Farming**

It is a method of farming system which primarily aims at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (bio-fertilizers) to release nutrients to crops for increased sustainable productions in an eco friendly pollution free environment.

As per the definition of the United States Department of Agriculture (USDA) Study Team on Organic Farming "Organic Farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum feasible rely upon crop rotations, crop residues , animal manures, off-farm organic wastes, mineral grade rock additives and biological system of nutrient mobilization and plant protection".

## Need of Organic Farming

With the increase in population our compulsion would be not only stabilize agricultural production but to increase it further in sustainable manner. The scientists have realized that the "Green Revolution" with high input use has reached a plateau and is now sustained with diminishing return of falling dividends. Thus, a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era. When these agrochemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. It may also cost heavily on our foreign exchange in future.

## The Key Characteristics of Organic Farming

- Protecting the long fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention.
- Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms
- Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures.
- Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention.
- The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioral needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing.
- Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats

## Rationale for Undertaking the Project

Though the disadvantages of using chemical pesticides and chemical fertilizers and advantages of depending on Organic Farming is widely discussed, the use of Organic Farming has not become practically widespread. This system of agriculture has not attained the deserved importance. Hence a large scale awareness creation about the need and significance of Organic Farming is a felt need of the time. By making all students in all schools aware about it, the vision and mission of Organic Farming can be popularized in the country to a large extend. For this purpose it is the teachers and future teachers who are to be oriented first. Since our institute is meant for pre-service teacher education, we intended to find out an effective strategy to develop a positive attitude towards Organic Farming and to equip the trainees with sufficient skill and knowledge in this system of agriculture. The present project was an output of that intention.

## 2. PREPARATORY WORK

In connection with the implementation of the project various preparatory activities were carried. They were:

- **Preparation of Programme of Action**

  For the effective and smooth functioning of the project a Programme of Action (POA) was prepared. All the activities to be carried was listed in it and such activities were conducted accordingly. A copy of the POA is attached as appendix 1.

- **Staff Meeting**

  In order to start the project a staff meeting was conducted in the college. In the meeting, the significance of the project and also the expected procedure of it was well explained by the project coordinator for further discussion. The co-operation of all staff of the college for the project was ensured in the meeting.

- **Presenting the Matter to the Teacher Trainees (B.Ed. Students)**

  Followed by the staff meeting the details regarding the project was explained to the B.Ed. students. The objectives of the project and expected activities for the project was discussed with them.

- **Formation of a Steering Committee**

  For the effective implementation of the project a steering committee with seven members was formulated. Among the members two were teachers and the remaining five were B.Ed. trainees.

- **Formation of Groups**

  One hundred students were there in the first year B.Ed. class. Of them 16 are males and 84 females. For the effective implementation of the project the total number of students were divided into ten groups with ten members in each group.

***Formation of Groups***

- **Selection of Land for Cultivation**

  Under the leadership of the steering committee the most suitable place was selected for doing Organic Farming. For

this different sites in the college campus were preliminary selected and based on the possibility of getting good sunrays

and watering facility two nearby plots were finally selected. The area of plot 1 was 3 cents and that of plot 2 was 2 cents. Thus the total are selected was 5 cents.

- **Deciding the Items of Vegetable for Cultivation**

  A list of vegetables to be planted in the plots was prepared under the leadership of the steering committee having discussion with all B.Ed. students. A copy of the list of vegetables selected for planting is attached as Appendix 2.

- **Construction of the Pre-test and Post-Test Tools.**

  In order to assess the attitude and knowledge of B.Ed. students in Oragnic Farming before and after the implementation of the project a five point Organic Farming ASK Scale was constructed. Copy of the tool is attached as Appendix 3.

- **Identifying Local Resources for Orientation on Organic Farming**

  Institutions and individuals capable of giving orientation to students on Organic Farming were identified. They include agriculture officers and local resource person in Organic Farming.

- **Arrangement of Equipment and Facilities**

  Agricultural equipment such as spade, sickle and basket were arranged. Though some of these items were present in the college, as it seems to be not sufficient, new more items were

purchased. Facility for watering the plants was also arranged by fitting new water taps and water connections to the plots.

## 3. EXECUTION OF THE PROJECT

**Title of the study was:**

Developing ASK in Organic Farming among Prospective Teachers.

**Definition of Key terms**

ASK stands for Attitude, Skill and Knowledge

In the present study ASK represents attitude of B.Ed. trainees towards Organic Farming, skill of them for doing Organic Farming and their knowledge in Organic Farming.

**Organic Farming**

Organic Farming is a system of agriculture which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, and biological system of nutrient mobilizion and plant protection.

**Objectives of the Project**

1. To develop a positive attitude among prospective teachers (B.Ed. trainees) towards Organic Farming.
2. To develop skill among prospective teachers in Organic Farming.
3. To develop adequate knowledge among prospective teachers in Organic Farming.
4. To equip prospective teachers for the transmission of ASK in Organic Farming among school students.

**Methodology in Brief**

Experimental method with single group, pre-test post-test design was used for the study.

The sample of the study consisted of all the first year B.Ed. students of the college.

The sample size was 100. Of them 84 were female and 16 were male students.

**Procedure of the Study**

**Pre-test**

Before beginning the study a pre-test was administered on the sample using the tool prepared already. The purpose of the test was to assess the position of the B-Ed. students with respect to:

a. Attitude towards Organic Farming; and

b. Knowledge in doing Organic Farming

The scores obtained by the students at the pre-test were analyzed and the position of the students with respect to the attitude towards Organic Farming and their knowledge in it before the implementation of the project was determined.

**Orientation on Organic Farming**

Agriculture Officer Smt. Manas D Explains to the Students about Organic Farming

Before implementing the project, an orientation program on Organic Farming was conducted in the college. The class was led by the Agriculture Officer Smt. Manas D. of our Grama Panchayath (Kumaramangalam Grama Panchayath). All the 1st year B.Ed. students participated in the class. The details regarding all aspects of Organic Farming was well explained and discussed in the class.

**Land Setting**

The land already identified for doing Organic Farming was made ready by spade work. It was done by the students on group wise. The whole site was divided into ten sections and the charge of each section was allotted to each of the ten groups already formulated.

**Collecting Vegetable Seeds and Cow-dung**

Different items of vegetable seeds which were pre-determined were collected from the local farmers / market. The vegetable items included pulses of

different kinds, bendai (ladies finger), bitter-gourd, snake-gourd (padavalam), koval, bringal, chilli etc. Seedlings of cauliflower were also collected. Beside collecting the required type and items of vegetable seeds and seedlings a large quantity of cow-dung was also collected from the local farmers.

**Sowing of the Seeds**

All the seeds before sowing were put into water for one day. It was done for easy and healthy sprout of the seeds . In

the orientation class given by the agriculture officer this suggestion was given to be strictly followed.

In the next day evening the seeds, which were put into water, were sowed in the sites which were prepared ready for cultivation. The inauguration of the vegetable cultivation was done as a function and a ceremony and the inauguration was done by the manager of the college, Rev. Dr. Francis Alappat.

While doing the cultivation of the seeds a senior citizen called Mathew chettan who is very efficient in cultivation, especially in Organic Farming was present there for providing necessary help and suggestions regarding the ways of cultivation. Besides him some more local farmers who were interested in Organic Farming were also present in the site for giving necessary

suggestions and encouraging the students and teachers involved in Organic Farming.

Sowing the seeds in the land was also done by group wise as done in the ease of setting the land for cultivation. As it was a group wise activity almost all members in each group participated in it actively. For planting the seeds each group prepared required number of pits and ridges around the pits. Sufficient quantity of dried cow-dung which was collected early was put in to the pits and mixed with soil. Then

the seeds were planted in the pits. Followed by this, sufficient quantity of water was mildly poured in to the pits which were rounded by ridges. Thus the planting of all seeds was completed in the same day. The participation of local resources helped and encouraged the students very much. Tea and snacks were provided by them.

**Watering and Nurturing**

Within 2-3 days almost all seeds were sprouted. Watering was started on the same day of cultivation. It was the duty of each group to water and nurture the small vegetables of their own sites. The watering and nurturing was continued until the end of the project by the same group in their own sites.

## Preparation and Application of Organic Fertilizers

In addition to the cow-dung dust put into the pits at the beginning of the cultivation, organic fertilizers were applied to them continuously on proper intervals of


time. Such organic fertilizers were prepared by the students themselves with the assistance of teachers and farmers of the local community.

The main organic fertilizer prepared and used was "Cow-dung Jeevani". It was prepared by mixing cow-dung, peanut cake


and neem cake. The ratio of materials of cow-dung, peanut cake, neem cake and water was 5:1:1:5. The viscous liquid thus prepared was stirred well. It was kept for at least three days so that it became fermented. The fermented liquid was further

diluted for applying to the vegetables. For diluting it, in one litre of the liquid 9 litres of water was added. The organic fertilizer thus prepared was poured in to the foot of the vegetable plant. While pouring this fertilizer in the pits of the vegetables care was taken for not to touch the fertilizer on the foot of the plants.

Besides this organic fertilizer prepared by the students, some more items of organic-fertilizers which were available in organic farming shops were also supplied to the vegetables.

## Preparation and Application of Organic Pesticides

In order to protect the plants from different kinds of insects, organic insecticides were also prepared by the students with the advice of organic farming experts. The main such organic insecticide prepared was

"tobacco decoction". For preparing this organic pesticide tobacco cut into small pieces was put into water for one day. After one day tobacco pieces were squized out and the tobacco sediment was removed from the solution. Then soap solution was added

to the tobacco solution and the mixture was stirred well and was filtered. This solution was kept in a big vessel. At the time of applying to the vegetables, required amount of the solution was poured into another convenient vessel and diluted by adding ten times of water into it.

In addition to the tobacco treatment a few more organic pesticides available in the pesticide shops were also made use of. (Eg: neem oil-garlic liquid)

Nearly after one month the vegetables like pulses and koval started yielding. Reaping was done when it

become matured. It continued for about four months. Within three months cauliflower was ready for reaping. Other vegetables were also yielded and started harvesting nearly after 6 weeks of cultivation. All the vegetables collected through harvesting were sold to the students, teachers and community members.

**Gathering / Plucking / Harvesting the vegetables**

First gathering / plucking was inaugurated by the college manager. Thereafter gathering / plucking was made regularly. Gathered vegetables were sold among students, teachers and local community

**Limitation and Problems of the Project**

Due to time constraints the area of cultivation of vegetables was limited to five cents only. The heavy practical work load of students has become a hindrance for spending much time for Organic Farming. The quality of vegetable seeds collected was another problem faced by the project. Some of the seeds purchased from the shops was of poor quality.

Rainfall in unexpected season was felt as a hinderance for the smooth implementation of the project.

## 4. ANALYSIS AND INTERPRETATION

In order to assess the attitude of B.Ed. trainees before and after the implementation of the project, Pre-test and Post-test was administered among the students. The same tool was administered for both the purpose.

The tool thus administered was developed in the college as a part of the preparatory activities. The tool consisted of twenty two items. All these items were rated on a 5 point scale.

The maximum scores that can be attained by a student was 22 x 5 = 110 and the minimum was 22 x 1 = 22, since the scores to responses were arranged as 5/4/3/2/1.Of the 22 items 11 were regarding the attitude of students on Organic Farming and the remaining 11 were regarding the knowledge of them for doing Organic Farming.

Using the scores obtained for the items related to attitude towards Organic Farming, the mean and standard deviation were calculated separately for the pre-test and post-test. Then it was tested whether there exist significant difference between the means of pre-test and post-test scores using t-test. The values obtained are given Table 1.

***Table 1***

***Mean, standard deviation and t value of the pre-test and post-test scores related to attitude of B.Ed students in Organic Farming.***

| Variable | Group | Number | Mean | Standard deviation | 't' value | Remark |
|---|---|---|---|---|---|---|
| Attitude towards Organic Farming | Pre-test | 100 | 16.42 | 4.27 | 16.98 | The different is significant at 0.01 level |
| | Post-test | 100 | 31.76 | 7.96 | | |

The table values show that the mean of scores of Pre-test is 16.42and that of post-test is 31.76. It shows that the mean value of scores obtained for attitude towards Organic Farming of B.Ed. students have become better than at the beginning of the project. The value of the final test 31.76 shows that the students possess a favourable attitude towards Organic Farming at the end of the project.

To test whether the difference in means is significant or not, "t" value was calculated. As the t value obtained (16.98) is greater than the table value 2.58 it is understood that the difference is significant at 0.01 level.

As done in the case of attitude scores, the mean and standard deviation of scores obtained related to knowledge of B.Ed. students in Organic Farming was calculated separately for pre-test and post test. Then t-value was also calculated. The values are presented in Table 2.

***Table 2.***

***Mean, standard deviation and t value of the pre-test and post-test scores related to knowledge of B.Ed students in Organic Farming.***

| Variable | Group | Number | Mean | Standard deviation | 't' value | Remark |
|---|---|---|---|---|---|---|
| Knowledge in Organic Farming | Pre-test | 100 | 20.76 | 6.39 | 13.69 | Significant at 0.01 level |
| | Post-test | 100 | 36.84 | 9.86 | | |

The table values show that mean value related to knowledge in Organic Farming of B.Ed. students in Pre-test is 20.76 and that of Post-test is 36.84 respectively. The corresponding standard deviations are 6.39 and 9.86 respectively. From the mean value it is clear that post-test mean score is higher than that of pre-test mean score. It shows that the knowledge of B.Ed students in Organic Farming has increased. The high mean value (36.84) shows that the students possess adequate knowledge in Organic Farming at the end of the project.

In order to test whether the difference is significant or not, the t-value was also calculated. As the t-value calculated (13.69) is higher than the table value 2.58 at 0.01 level, it is revealed that there exists significant difference between mean scores of pre-test and post-test. It means that the project has made significant improvement in the knowledge of B.Ed. students in Organic Farming.

The improvement in the skill of B.Ed. students for doing Organic Farming was assessed by observing their performance. Their performance in various activities related Organic Farming was continuously assessed by a team consisted of teachers and community members who are deeply involved in Organic Farming. In the opinion of this assessment team, the skill of students in involving Organic Farming has improved very much as a result of their participation in the project. They have also remarked that big majority of the students possess adequate skill in doing Organic Farming.

## 5. RESULTS

Through the execution of the project much improvement was made among the B.Ed. trainees with respect to their:

- Attitude towards Organic Farming;
- Skills in doing cultivation by the method of Organic Farming: and
- Knowledge in doing Organic Farming

The improvement of students in attitude was assessed through the results of pre-test and post-test. Their improvement in knowledge for doing Organic Farming was also assessed through the scores obtained by the students at their pre-test and post-test. The improvement of the students in their skill for engaging in Organic Farming was mainly assessed through the assessment of their performance by an assessment team.

## 6. CONCLUSIONS AND IMPLICATIONS

Our project in Organic Farming was an effective one. It contributed various positive aspects. The target group of the project was 100 B.Ed. first year students. In this project all the students participated actively. Through the implementation of the project we have achieved the pre-determined objectives. Those achievements are summarised:

1. The first objective of the project was to develop a favourable attitude among B.Ed. student towards Organic Farming. In order to assess the attitude of B.Ed. students towards Organic Farming at the end of the project, a post- test was conducted. The mean value obtained for this test was 31.76 and the maximum score was 55. This high mean value shows that at the end of the project the students have attained a favorable attitude towards Organic Farming. At the same time the mean value obtained at the pre-test was only 16.42. So it is concluded that the change in attitude is due to the involvement in the project.

   In order to test whether the difference in the mean scores of attitude is significant or not, the t-value was also calculated. The t-value obtained is 16.98. This shows that the attitudinal change is significant also. All these facts show that the project has attained the objective of developing favorable attitude among B.Ed. trainees towards Organic Farming.

2. Another objective of the project was to develop adequate knowledge in Organic Farming among B.Ed. students. As done in the case of assessing attitudinal change, the knowledge level of B.Ed. students in Organic Farming was also assessed at the end of the project. In the assessment it was found that the average score of students in knowledge was 36.84 out of 55 scores. This high mean value shows that at the end of the project students have attained a good level of knowledge in Organic Farming.

   Comparison of the mean scores of pre-test and post-test was done by applying the statistical technique, t-test. As the mean score obtained for the post-test is 36.84 and that for pre-test is 20.76, the difference in means or increase in the means is 16.08. To test whether, this difference is significant or not, the t-value was calculated and found that the difference is significant.

   From the above mentioned facts it is clear that the B.Ed. students have attained the objective of 'adequate knowledge in Organic Farming' as a result of the project.

3 From the opinion of teachers and other community members who are experts in Organic Farming and were selected as the members of our skill assessment team it was understood that the students have achieved sufficient skill in Organic Farming. It was done by assessing the performance of the students.

4. The opinion of the students revealed that they are equipped well and willing to

utilize their ASK in Organic Farming attained through the involvement in the project in their future. That is they are able to utilize their ASK in Organic Farming when they become teachers in the future.

5. Besides the targeted objectives, the students obtained many other advantages also. They are summarized here:

- The participation and involvement in the project provided the students good opportunities for engaging in co-operative activities.
- It helped not only the students but also the institution as a whole for having good community involvement.
- Students got opportunities for understanding various activities carried out by Agricultural Offices.
- Another important advantage they acquired is regarding the values. Their concept about the "dignity of labour" became more concrete and favourable.
- As a result of involvement in Organic Farming, the B.Ed. students got a hands on experience regarding the difficulties faced by the farmers. Their respect for farmers and agriculture is improved very much.

**Educational Implications**

Organic Farming system can be implemented in all Colleges of Education and all other Teacher Training Institutions. That will help to equip at present all the teacher trainees to develop favourable attitude towards Organic Farming, and adequate knowledge in Organic Farming. The good and valuable learning experiences they obtain as a result of engaging in various activities related to the Organic Farming during their pre-service Teacher Education Programme will enable them for applying practically ASK in Organic Farming among their students when they become teachers in future.

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# Tentative Dates of Activities

*Appendix 1*

*October 2017*

| Sl. No. | Activities | Dates | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 1. | Preparation of programme of action | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | | | | |
| 2. | Staff meeting | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | | | |
| 3. | Presenting about the project among students | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| 4. | Construction of pre-test and post-test tools | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| 5. | Administration of pre-test | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| 6. | Formation of steering committee | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | | |
| 7. | Formation of groups | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| 8. | Selection of land for farming | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | | |
| 9. | Deciding items of vegetable for farming | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| 10. | Identifying local resources for orientation | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| 11. | Arrangement of equipments and facilities | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| 12. | Orientation on Organic Farming | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | | |
| 13. | Land preparation | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | | ● | ● |
| 14. | Collecting vegetable seeds and cow-dung | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | |
| *November 2017* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15. | Sowing of the seeds | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | Watering and nurturing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| 17. | Preparation and application of organic fertilizer | | | | | | | | | | ● | | | | | | | | | | ● | | | | | | | | | | ● | |
| 18. | Preparation and application of organic pesticides | | | | | | | | | | | | | | | | | ● | | | | | | | | | | ● | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Tentative Dates of Activities

***December 2017***

| Sl. No. | Activities | Dates | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 15. | Sowing of the seeds | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | Watering and nurturing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 17. | Preparation and application of organic fertilizer | | | | | | | | | ● | | | | | | | | | | | ● | | | | | | | | | ● | | |
| 18. | Preparation and application of organic pesticides | | | | | | | | | | | | ● | | | | | | | | | | ● | | | | | | | | ● | |
| 19. | Harvesting of the vegetables | ● | | | | | | | ● | | | | | | | ● | | | | | | | ● | | | | | | | ● | | |
| ***January 2018*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | Watering and nurturing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 17. | Preparation and application of organic fertilizer | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | ● | |
| 18. | Preparation and application of organic pesticides | | | | | | | | | | | | ● | | | | | | | | | | | | ● | | | | | | ● | |
| 19. | Harvesting of the vegetables | | | ● | | | | | | ● | | | | | | ● | | | | | | ● | | | | | | ● | | | | |
| ***February 2018*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | Watering and nurturing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| 17. | Preparation and application of organic fertilizer | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | ● | | | |
| 18. | Preparation and application of organic pesticides | | | | | | | | ● | | | | | | | | | | | | ● | | | | | | | | | | | |
| 19. | Harvesting of the vegetables | ● | | | | | | ● | | | | | | ● | | | | | | ● | | | | | | | ● | | | | | |
| ***March 2018*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. | Watering and nurturing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | | |
| 17. | Preparation and application of organic fertilizer | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18. | Preparation and application of organic pesticides | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19. | Harvesting of the vegetables | ● | | | | | ● | | | | | | | ● | | | | | | | | | | | | | | | | | | |
| 20. | Post-test | | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 21. | Report writing | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | | | | | | | |
| 22. | Sending the Report to NCERT | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | | | |

*Appendix 2*

# Organic Farming ASK Scale

Attitude and Knowledge Assessment Scale

**Instructions**

Some statements are given below. After reading each statement make you response with a ( ✔ ) mark in the appropriate column. SA denotes strongly agree, A denotes agree, U denotes undecided, D denotes disagree and SD denotes strongly disagree. Please do not omit any statement.

| Sl. No. | Activities | Responses | | | | |
|---|---|---|---|---|---|---|
| | | SA | A | U | D | SD |
| 1. | Organic Farming is an interesting activity. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | Organic Farming is an effective strategy for producing non-poionous vegetables. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. | Organic Farming is very expensive than other type of farming. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | Vegetables produced through Organic Farming is more delicious. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | It is not possible to do Organic Farming by an ordinary farmer. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | Vegetable production will be much reduced if we depend on Organic Farming. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | It is not possible to control the insects through organic pesticides. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. | Nurturing vegetable plants is very difficult task. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | Introducing Organic Farming in schools is necessary. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | Involving in Organic Farming gives mental satisfaction. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | Conducting Organic Farming by every family is possible. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | I know how to prepare land for vegetable cultivation. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. | Preparation of any kind organic fertilizer is not known to me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. | Spade work is known to me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. | Sowing vegetable seeds is known to me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | I can prepare at least one type of Organic pesticides by myself. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. | I know to pluck the ripen vegetables. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | The advantage of organic pesticides is known to me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | I do not know the advantages of organic farming. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. | I know how to nurture vegetables. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 21. | I know the mode of applying fertilizers to vegetables. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22. | I know the process of using pesticides for vegetables. | ☐ | ☐ | ☐ | ☐ | ☐ |

*Appendix 3*

# List of Vegetables to be Cultivated

| Sl. No. | Items |
|---|---|
| 1. | Different types of pulses. |
| 2. | Cauliflower |
| 3. | Cabbage |
| 4. | Ivy gourd (koval) |
| 5. | Bitter gourd |
| 6. | Pumpkin |
| 7. | Cucumber |
| 8. | Brinjal |
| 9. | Ladies finger |
| 10. | Snake gourd |
| 11. | Green chilly |
| 12. | Red Cheera |


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