**Potential sustainable agriculture practices**

Sustainable Agricultural Practices: In the core of the study we have first introduce the each of the following strategies in a banner of sustainable agriculture practices to the respondents.

**Crop Rotation**

Crop rotation is one of the most powerful techniques of sustainable agriculture. Its purpose is to avoid the consequences that come with planting the same crops in the same soil for years in a row. It helps tackle pest problems, as many pests prefer specific crops. If the pests have a steady food supply, they can greatly increase their population size.

**Permaculture**

Permaculture is a food production system with intention, design, and smart farming to reduce waste of resources and create increased production efficiency. Permaculture design techniques include growing grain without tillage, herb and plant spirals, garden beds, keyhole and mandala gardens, sheet mulching, each plant serving multiple purposes, and creating swales on contour to hold water high on the landscape.

**Cover Crops**

Many farmers choose to have crops planted in a field at all times and never leave it barren; this can cause unintended consequences. By planting cover crops, such as clover or oats, the farmer can achieve his goals of preventing soil erosion, suppressing the growth of weeds, and enhancing the quality of the soil. The use of cover crops also reduces the need for chemicals such as fertilizers.

**Soil Enrichment**

Soil is a central component of agricultural ecosystems. Healthy soil is full of life, which can often be killed by the overuse of pesticides. Good soils can increase yields as well as help create more robust crops. It is possible to maintain and enhance the quality of the soil in many ways. Some examples include leaving crop residue in the field after a harvest, and the use of composted plant material or animal manure.

**Natural Pest Management**

In order to maintain effective control over pests, it is important to view the farm as an ecosystem as opposed to a factory. For example, many birds and other animals are, in fact, natural predators of agricultural pests. Managing your farm so that it can harbor populations of these pest predators is effective as well as a sophisticated technique. The use of chemical pesticides can result in the indiscriminate killing of pest predators.

**Bio intensive Integrated Pest Management**

Integrated Pest Management (IPM) is an approach, which essentially relies on biological as opposed to chemical methods. IMP also emphasizes the importance of crop rotation to combat pest management. Once a pest problem is identified, IPM will ensure that chemical solutions will only be used as a last resort. Instead, the appropriate responses would be the use of sterile males and bio control agents such as ladybirds.

**Better Water Management**

The first step in water management is the selection of the right crops. Local crops that are more adaptable to the weather conditions of the region are selected. Crops that do not demand too much water must be chosen for dry areas. There should be well-planned irrigation systems; otherwise, other issues like river depletion, dry land and soil degradation will develop. The application of rainwater harvesting systems by storing rainwater can be used in drought prevailing conditions. Apart from that, municipal wastewater can be used for irrigation after recycling.

If you now aware about the above discussed practices, please help us to fill the following questionnaire.

**Table S1: The Excerpt Questionnaire of the Study**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Label/measurement** | **Latent construct/scale/value** |
| Sample criteria | Respondent number | Nominal scale |
| respondent | Do you have any prior knowledge regarding at least one types of Sustainable Agriculture practices as discussed earlier? | 0=Yes, 1=No |
| age | Your age (in years) | Continuous scale |
| gender | Gender | Male=0, Female=1 |
| marital status | Marital Status |  |
| education | Educational level | No/Primary Education=0, Secondary/diploma =2, College degree=3, Graduate –above=4 |
|  | | |
|  | **Attitudes towards sustainable Agriculture (ATS)** |  |
| ATS\_1 | Sustainable Agriculture is valuable because these practices are more environmentally friendly. | (1=strongly disagree,  7=strongly agree) |
| ATS\_2 | Sustainable Agriculture is desirable as these tactics could be useful to manage the adverse effects of environmental degradation. |
| ATS\_3 | Sustainable agriculture somehow helps in enhancing a healthy lifestyle. |
| ATS\_4 | The component of Sustainable Agriculture is very useful |
| ATS\_5 | Sustainable Agriculture is Economically viable. |
|  | **Possible societal influences from friends, peers, family, and others (SR)** |  |
| SR\_1 | As SA practices exercise a healthy lifestyle, my family member encourages me to adopt sustainable agriculture practices. | (1=strongly disagree, 7=strongly agree) |
| SR\_2 | I follow my friend’s suggestions that I might have to adopt sustainable agriculture for not only safer work conditions but also the betterment of the environment and society. |
| SR\_3 | I usually get a recommendation from my peer for adopting sustainable agriculture. |
|  | **Perceived behaviour control (PBC)** |  |
| PBC\_1 | I have better access to resources, financial assesses, and training facilities, which triggers my ability to adopt sustainable agriculture practices. | (1=strongly disagree, 7=strongly agree): |
| PBC\_2 | The adopting process is easy. |
| PBC\_3 | I am confident about my abilities to adopt sustainable agriculture practices. |
|  | **Perceived Self-identity (PSI)** |  |
| PSI\_1 | I believe that I will adopt sustainable tactics as I possessed high morals that the SA practices trigger environmentally safe, better societal transitional, and human well begin. | (1=strongly disagree, 7=strongly agree): |
| PSI\_2 | I want to identify myself as an environmentally friendly farmer and want to spread the betterment of SA for the sake of myself, my family, and, moreover, for society. |
| PSI\_3 | I believe that I am someone who wants to quantify healthier ecosystems. |
|  | **Adoption intention (AI)** |  |
| AI\_1 | I am currently initiating the plan to adopt sustainable agricultural practices. | (1=strongly disagree, 7=strongly agree): |
| AI\_2 | I am very resourceful and probably willing to see how I can follow sustainable agricultural methods. |
| AI\_3 | I will make a plan in the future to adopt SA practices. |

**Descriptive Statistics**

A descriptive statistics implies the socio-demographic background of the surveyed respondents which quantify the whole respondents features like the educational level, gender, resident area (urban or rural), age ranges, education levels and so on. It is also essential to show the relevance and fitness of the topics within the studied respondent. In our study we found most of the farmers are relatively educated with at least college degree (46%). Most of the total respondents were married (75%). As shown in Table S2, 85% percent of the respondents were male. The age group of the respondents in the survey was fairly distributed 20%, 22%, and 57% respectively. About 66% young farmers have prior knowledge regarding at least one types of potential sustainable agriculture practices.

**Table S2 Descriptive Statistics.**

|  |  |  |
| --- | --- | --- |
| **Description** | **Frequency** | **%** |
| **Gender** |  |  |
| Male | 133 | 85**%** |
| Female | 24 | 15**%** |
| **Age** |  |  |
| 21-23 | 32 | 20**%** |
| 24-26 | 35 | 22**%** |
| 27-30 | 90 | 57**%** |
| **Marital Status** |  |  |
| Single | 39 | 25**%** |
| Married | 118 | 75**%** |
| **Education** |  |  |
| No/primary education | 32 | 20**%** |
| Secondary/diploma | 54 | 34**%** |
| College degree | 48 | 31**%** |
| Graduate –above | 23 | 15**%** |
| **Prior Knowledge Regarding SA** |  |  |
| Yes | 103 | 66**%** |
| No | 54 | 34**%** |