Table S1. Socio-demographic characteristics of the sampled farmers in Sado Island, Japan.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequency (n=279)** | **Percentage (%)** |
| **Region** |  |  |
| Central East | 59 | 21.1 |
| Central West | 57 | 20.4 |
| West | 45 | 16.1 |
| North East | 42 | 15.1 |
| South | 38 | 13.6 |
| Central South | 38 | 13.6 |
| **TOTAL:** | **279** | **100.0** |
| **Age** |  |  |
| 15-39 | 5 | 1.8 |
| 40-49 | 10 | 3.6 |
| 50-59 | 40 | 14.3 |
| 60-64 | 53 | 19.0 |
| 65-79 | 143 | 51.3 |
| 80 and above | 28 | 10.0 |
| **TOTAL:** | **279** | **100.0** |
| **Sex** |  |  |
| Male | 260 | 93.2 |
| Female | 19 | 6.8 |
| **TOTAL:** | **279** | **100.0** |
| **Farming experience** |  |  |
| 9 years and below | 17 | 6.1 |
| 10-19 | 62 | 22.2 |
| 20-29 | 36 | 12.9 |
| 30-39 | 51 | 18.3 |
| 40 years and above | 113 | 40.5 |
| **TOTAL:** | **279** | **100.0** |
| **Commercial farmer 1** |  |  |
| Yes | 267 | 95.7 |
| No | 12 | 4.3 |
| **TOTAL:** | **279** | **100.0** |
| **Family members have non-farming jobs** |  |  |
| Yes | 177 | 63.4 |
| No | 102 | 36.6 |
| **TOTAL:** | **279** | **100.0** |
| **Farm income is higher than other jobs** |  |  |
| Yes | 53 | 19.0 |
| No | 132 | 47.3 |
| No answer | 94 | 33.7 |
| **TOTAL:** | **279** | **100.0** |
| **Family farm registration type** | | |
| Family farm not registered as company | 257 | 92.1 |
| Family farm registered as company | 7 | 2.5 |
| Organized farm | 7 | 2.5 |
| Others | 8 | 2.9 |
| **TOTAL:** | **279** | **100.0** |
| **Farming method 2** |  |  |
| Special farming | 216 | 77.4 |
| Organic farming | 30 | 10.8 |
| Eco-farming or related | 26 | 9.3 |
| Conventional farming | 7 | 2.5 |
| **TOTAL:** | **279** | **100.0** |
| **Farmland size** |  |  |
| Less than 1 ha | 48 | 17.2 |
| 1-5 ha | 144 | 51.6 |
| 5-10 ha | 33 | 11.8 |
| 10-20 ha | 28 | 10.0 |
| 20-30 ha | 13 | 4.7 |
| 30-50 ha | 7 | 2.5 |
| 50 ha and above | 6 | 2.2 |
| **TOTAL:** | **279** | **100.0** |
| **Paddy land area/size** |  |  |
| Less than 1 ha | 56 | 20.1 |
| 1-5 ha | 145 | 52.0 |
| 5-10 ha | 28 | 10.0 |
| 10-20 ha | 29 | 10.4 |
| 20-30 ha | 8 | 2.9 |
| 30-50 ha | 7 | 2.5 |
| 50 ha and above | 6 | 2.2 |
| **TOTAL:** | **279** | **100.0** |
| **Paddy yield (per tan)3** |  |  |
| Less than 5 hyo | 4 | 1.4 |
| 5-6 hyo | 10 | 3.6 |
| 6-7 hyo | 28 | 10.0 |
| 7-8 hyo | 113 | 40.5 |
| 8-9 hyo | 121 | 43.4 |
| 10 hyo and above | 3 | 1.1 |
| **TOTAL:** | **279** | **100.0** |

1 A commercial farmer is required to have a farm area of at least 0.30 ha and sells farm products valued at more than JPY 500,000 per annum. This is also one of the criteria to become a council member for promotion of the *Toki-to-kurasu-satojukuri-suishin kyogikai* (Council for Promotion of community development living with *Toki*)

2 Special farming: uses 50%-80% less fertilizers and pesticides from the conventional farming practice of the locality, complies with GIAHS regulations; Organic farming: certified as organic by Japanese Agricultural Standards (JAS), or no JAS certification but do not use chemical fertilizers and synthetic pesticides; Eco-farming or related: environmentally friendly methods based on other standards; Conventional farming: uses chemical fertilizers and pesticides prescribed and practiced in the region

3 1 hyo = 60 kg, 1 tan = 10a = 1,000 sqm

Table S2. ECA-related and climate change-related factors of farmers in Sado Island, Japan.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequency (n=279)** | **Percentage (%)** |
| **ECA interest** |  |  |
| High | 233 | 83.5 |
| Not high | 26 | 9.3 |
| Neutral | 20 | 7.2 |
| **TOTAL:** | **279** | **100.0** |
| **Engaging in ECA opportunities** |  |  |
| **Status for receiving ECA subsidy** |  |  |
| Receiving subsidy up to now | 156 | 55.9 |
| Receiving before but not currently | 38 | 13.6 |
| Never received subsidy | 56 | 20.1 |
| Others | 5 | 1.8 |
| No answer | 24 | 8.6 |
| **TOTAL:** | **279** | **100.0** |
| **ECA continuation** |  |  |
| Yes | 242 | 86.7 |
| No | 5 | 1.8 |
| Neutral | 32 | 11.5 |
| **TOTAL:** | **279** | **100.0** |
| **Reason for ECA continuation \*** |  |  |
| To build trust with consumers | 135 | 48.4 |
| To improve local and global environment | 114 | 40.9 |
| To supply better products | 109 | 39.1 |
| Advised by Japan Agricultural Cooperatives or local government | 88 | 31.5 |
| Good price | 68 | 24.4 |
| Demand is high | 48 | 17.2 |
| Self-health | 42 | 15.1 |
| To decrease production cost of fertilizers and pesticides | 39 | 14.0 |
| Others | 8 | 2.9 |
| **Relation of ECA with climate change \*** |  |  |
| No impact on climate change | 122 | 43.7 |
| ECA is related with climate change as an adaptation | 71 | 25.4 |
| Reducing the effect | 64 | 22.9 |
| Others | 9 | 3.2 |
| **Opinion on whether climate change has an effect on agriculture or not** | | |
| Strongly yes | 148 | 53.0 |
| Yes | 126 | 45.2 |
| No | 3 | 1.1 |
| Strongly no | 1 | 0.4 |
| Neutral | 1 | 0.4 |
| **TOTAL:** | **279** | **100.0** |
| **Expectation in adopting ECA \*** | | |
| Conservation of biodiversity | 205 | 73.5 |
| To add value in quality of products | 186 | 66.7 |
| Conservation of water (quality) | 94 | 33.7 |
| Increase farm related income | 94 | 33.7 |
| Promote local industry | 59 | 21.1 |
| Carbon sequestration | 45 | 16.1 |
| Decrease effect of weather hazards | 36 | 12.9 |
| Retain underground water | 15 | 5.4 |
| Retain residents in rural area | 12 | 4.3 |
| Others | 8 | 2.9 |
| **Reason for expanding towards ECA \*** |  |  |
| To build trust with consumers | 71 | 25.4 |
| To improve local and global environment | 61 | 21.9 |
| To supply better products | 50 | 17.9 |
| Good price | 31 | 11.1 |
| Demand is high | 30 | 10.8 |
| To decrease use of fertilizers and pesticides | 25 | 9.0 |
| Advised by Japan Agricultural Cooperatives or local government | 22 | 7.9 |
| Self-health | 16 | 5.7 |
| Others | 4 | 1.4 |
| **Effects of climate change \*** |  |  |
| Temperature (i.e., rise of sea temperature, extreme hot days) | 253 | 90.7 |
| Heavy (torrential) guerilla rain, flood | 174 | 62.4 |
| Drought | 149 | 53.4 |
| Typhoon, cyclone, tornado | 134 | 48.0 |
| Damage of farm products | 122 | 43.7 |
| Change in season/duration | 92 | 33.0 |
| Change in distribution of plants/crops | 64 | 22.9 |
| Damage of land/farmland | 53 | 19.0 |
| Melting of glaciers, sea-level rise | 50 | 17.9 |
| Damage of houses/buildings | 23 | 8.2 |
| Others | 7 | 2.5 |
| **Farming adaptation to climate change \*** |  |  |
| Water management | 183 | 65.6 |
| Soil management | 113 | 40.5 |
| Change in planting time | 108 | 38.7 |
| Ameliorate pest/diseases | 60 | 21.5 |
| High temperature tolerant variety | 24 | 8.6 |
| Change land use pattern | 13 | 4.7 |
| Choose different crop | 5 | 1.8 |
| Others | 11 | 3.9 |
| **GIAHS involvement** |  |  |
| Strongly yes | 122 | 43.7 |
| Strongly no | 28 | 10.0 |
| Not sure | 129 | 46.2 |
| **TOTAL:** | **279** | **100.0** |
| **Opinion on GIAHS giving pride and confidence to youths** | | |
| Strongly yes | 108 | 38.7 |
| Strongly no | 33 | 11.8 |
| Not sure | 138 | 49.5 |
| **TOTAL:** | **279** | **100.0** |
| **Opinion on GIAHS enhancing agricultural products/brand of Sado Island** | | |
| Strongly yes | 165 | 59.1 |
| Strongly no | 24 | 8.6 |
| Not sure | 90 | 32.3 |
| **TOTAL:** | **279** | **100.0** |
| **Opinion on GIAHS promoting tourism in Sado Island** | | |
| Strongly yes | 139 | 49.8 |
| Strongly no | 42 | 15.1 |
| Not sure | 98 | 35.1 |
| **TOTAL:** | **279** | **100.0** |
| **Farmers’ wish for farming \*** |  |  |
| Area no change, same farming method | 160 | 57.3 |
| Will expand area, same farming method | 42 | 15.1 |
| Area no change, towards ECA | 32 | 11.5 |
| Decrease area, same farming method | 26 | 9.3 |
| Will expand current farming to ECA | 10 | 3.6 |
| Decrease area, towards ordinary farming | 1 | 0.4 |
| Others | 8 | 2.9 |

\* Multiple response. Questions related to ECA and climate change were adopted from MAFF (2015, 2016, and 2018).