

**FACTORS AFFECTING THE ADOPTION OF
SUSTAINABLE UPLAND AGRICULTURE AT
LAWU MOUNTAIN, INDONESIA**

PUGUH KARYANTO

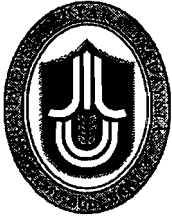
**DOCTOR of PHILOSOPHY
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**FACTORS AFFECTING THE ADOPTION OF
SUSTAINABLE UPLAND AGRICULTURE AT
LAWU MOUNTAIN, INDONESIA**

By

PUGUH KARYANTO

**Thesis Submitted to the Centre for Graduate
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the Requirement for the Degree of Doctor of
Philosophy**



Kolej Undang-Undang, Kerajaan dan Pengajian Antarabangsa
(College of Law, Government and International Studies)
Universiti Utara Malaysia

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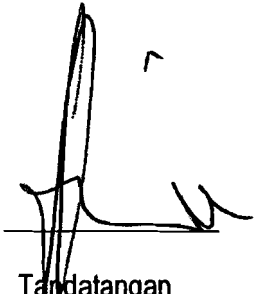
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ABSTRACT

Sustainability in upland agriculture has faced a great challenge since a balance must be sought between environmental protection and economic orientation. Towards sustainable upland agriculture, stakeholders must perform particular strategies that address the economic orientation of the agriculture without compromising the upland conservation efforts to maintain the critical ecological properties of the upland. At the study site, organic farming and some other forms of environmentally friendly agriculture has been promoted as strategies that are in line with the idea of sustainable upland agriculture. However, despite the promotion of these green strategies, the upland farmers at the study site are still suffered from adopting these sustainable agricultural practices. This case shows that the diffusion of sustainable upland agriculture has faced many obstacles. Yet, this research is aimed to observe factors behind the poor diffusion of sustainable upland agriculture.

Framework for assessing linkage between capacity/incentive and natural resource degradation and the Driving Force-Pressure-State-Impact-Response Framework (DPSIR) were used in combination in this research. The capacity was translated into five types of livelihood asset *i.e.* social, human, financial, natural and physical capital. The incentive was translated into the governmental incentive and market signal. Both the capacity and incentive were proposed as predictors for the extent of adoption of sustainable upland agriculture. Stratified random sampling was the sampling technique used in this research. The data was collected by applying questionnaire upon 408 farmers. By using SPSS released 16.5, the obtained data was analyzed by the multiple-linear regression analyses.

The obtained R square from the regression analysis is 0.649 with the F statistic less than 0.05. The regression model did a good job in explaining relationship between the proposed predictors and the independent variable. All predictors except the market signal are significantly associated with the dependent variable. According to the value of the beta standardized coefficient, the Incentive is the major predictor in affecting the diffusion and adoption of sustainable upland agriculture. Ensuring the profitability of performing sustainable upland agriculture by building good market channel, providing credit and, allocating subsidy for the organic input are considered as critical. Buildings strong human capital in agriculture by providing assistances, trainings and guidance are also become one of important actions to improve the upland farmers' confident to adopt sustainable upland agriculture.

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Appendix 1 Research Questionnaire

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LIST OF ABBREVIATIONS

ANOVA	: Analysis of Variance
asl	: above sea Level
BI	: Behavioural Intention
BIMAS	: <i>Bimbingan Massal</i>
CAC/GL	: Codex Allimentarius Code/Guide Lines
CGIAR	: Consultative Group on International Agricultural Research
DSR	: Driving force- State-Response
DPSIR	: Driving force-Pressure-State-Impact-Response
EEA	: European Environmental Agency
FAO	: Food and Agriculture Organization
GDP	: Gross Domestic Products
HEIA	: High External Input Agriculture
INTANPARI	: <i>INDustri, PerTANian, PARIwisata</i>
INMAS	: <i>Intensifikasi Massal</i>
IMF	: International Monetary Fund
IFPRI	: International Food Policy Research Institute
IDR	: Indonesian Rupiah
IFOAM	: International Federation on Organically Produced Food
KCL	: Kalium Chloride
Km ²	: Kilometer Square
KOMASATU	: <i>Komunitas Masyarakat Sehat</i>
LEIA	: Low External Input Agariculture
LPTP	: <i>Lembaga Pengembangan Teknologi Pedesaan</i>
M ²	: meter
NGO	: Non-Governmental Organization
NPK	: Nitrogen Phosphat Kalium
OECD	: Organisation for Economic co-operation and Development
POKJA	: <i>Kelompok Kerja</i>
PSR	: Pressure-State-Response
RT	: <i>Rukun Tetangga</i>
SLF	: Sustainable Livelihood Framework

SNI	: <i>Standar Nasional Indonesia</i>
SPIA	: Standing Panel on Impact Assessment
SPSS	: Statistical Programming for Social Science
TSP	: Triple Super Phosphate
UN	: United Nation
UN CSD	: United Nation, Commission on Sustainable Development
UU SISDIKNAS	: <i>Undang-undang Sistem Pendidikan Nasional</i>
VIF	: Vector Inflation Factor
WHO	: World Health Organization

DEDICATION

To:
My beloved wife:

Khoirina Dwi Nugrahaningtyas

My beloved children:

*Nisrina 'Abidah Qurratul 'Atini,
Atiyah Nurul 'Ulmi,
Muhammad Rasyad Mufarrid,
Ikhsan Rasyid Atulrahman*

May Allah Subhanna Wata'ala Always bless us, amiin Yaa Rabbal
'Alamiin

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

1.1.1 Sustainable Agriculture

Sustainable has the root word “sustain”. It is derived from the Latin word *sustinere*; *sus-* from below and *-tenere* to hold (Gold, 1999). Referring to that grammatical meaning, sustainability can be interpreted as to handle something to keep it exist for the unlimited of time. As pertained to agriculture, sustainable agriculture then can be defined as a state when agricultural activity is handled to stay functional and productive for all the time. Functional means that agriculture must ensure its function, to allow the society to meet with their basic need. Productivity means that agricultural activity must be able to produce sufficient supply of food and fibre for the society along with its function. Towards sustainable agriculture, both function and productivity must be maintained without harming the environment.

Sustainable agriculture is an idea in agriculture that popularized after the widespread dissemination of Brundtland’s report “Our Common Future” especially, after the publication of UN conference on the environment and development held in Rio de Janeiro 1992 (Azar *et al*, 1996). The Brundtland’s report was the important starting point for the widespread popularization of

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APPENDICES

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- Appendix 1. Research questionnaire**
 - Appendix 2. Questionnaire' results**
 - Appendix 3. Regression analysis**
 - Appendix 4. Village profile**
-

**INSTRUMENTS OF RESEARCH
(ANGKET PENELITIAN)**

**FACTORS AFFECTING THE ADOPTION OF SUSTAINABLE UPLAND
AGRICULTURE AT LAWU MOUNTAIN INDONESIA**

Petunjuk pengisian :

Isilah jawaban pada tempat yang disediakan dengan memberi lingkaran pada jawaban yang cocok atau dengan mengisi titik-titik yang telah disediakan.

BAGIAN I. IDENTITAS

Nama :

Umur :

Alamat : RT.....
RW/Kebayanan.....
Desa.....
Kecamatan.....

Pendidikan : Tidak Sekolah () SD () SMP ()
SMA ()
Perguruan tinggi ()

Perkiraan lama bertani :

Pekerjaan selain bertani :

Jumlah Tanggungan :
.....

Status kependudukan : Asli () Pendetang ()

Perkiraan *income* keluarga perbulan :

Kepemilikan lahan (in meter square) :

1. Status kepemilikan lahan () Sendiri () Sewa () Keduanya ada
2. Total luas lahan yang digarap :

BAGIAN II
MODAL SOSIAL (SOCIAL CAPITAL)

RELATION OF TRUST

Untuk setiap pertanyaan:

- ✓ 1 Sangat tidak percaya
- ✓ 2 Sedikit percaya
- ✓ 3 Biasa
- ✓ 4 Percaya
- ✓ 5 sangat percaya

1. Bagaimanakah kepercayaan saudara terhadap keluarga dekat (Orangtua/suami/istri/anak) dalam pengambilan keputusan bertani	1	2	3	4	5
2. Bagaimanakah kepercayaan saudara terhadap saudara jauh (ipar/sepupu, misan/dll) dalam pengambilan keputusan bertani	1	2	3	4	5
3. Bagaimanakah kepercayaan saudara terhadap tetangga dekat dan sejawat petani dalam pengambilan keputusan bertani	1	2	3	4	5
4. Bagaimanakah kepercayaan saudara percaya terhadap orang asing Cina dan Arab untuk berhubungan dengan mereka	1	2	3	4	5
5. Bagaimanakah kepercayaan saudara percaya terhadap pemerintah pada tingkat Desa	1	2	3	4	5
6. Bagaimanakah kepercayaan saudara terhadap pemerintah pada tingkat Kecamatan/Kabupaten/Propinsi/Pusat	1	2	3	4	5
7. Bagaimanakah kepercayaan saudara terhadap institusi (dinas) pertanian yang ada	1	2	3	4	5
8. Bagaimanakah kepercayaan saudara terhadap para penyuluh pertanian	1	2	3	4	5
9. Bagaimanakah kepercayaan saudara pada LSM bidang pertanian dan pedesaan	1	2	3	4	5

RECIPROCITY AND EXCHANGE

Untuk setiap pertanyaan:

- √ 1 Tidak pernah
- √ 2 hampir tidak pernah
- √ 3 kadang-kadang
- √ 4 Hampir sering
- √ 5 Sering

1. Dalam setiap saling kunjung antara saudara dengan kerabat, seberapa sering membicarakan hal yang berkaitan dengan masalah pertanian	1	2	3	4	5
2. Dalam setiap saling kunjung antara saudara dengan tetangga seberapa sering membicarakan hal yang berkaitan dengan masalah pertanian	1	2	3	4	5
3. Dalam setiap saling kunjung antara saudara dengan teman di luar desa, seberapa sering membicarakan hal yang berkaitan dengan masalah pertanian	1	2	3	4	5
4. Seberapa sering anda berpartisipasi dalam kegiatan bersih desa atau sambatan untuk kepentingan sosial	1	2	3	4	5
5. Dalam satu tahun terakhir seberapa sering anda hadir pada pertemuan yang diselenggarakan pada tingkat desa (PKK, LMD, PNPM dan lain2)	1	2	3	4	5
6. Dalam satu tahun terakhir seberapa sering anda berpartisipasi dalam kegiatan kelompok tani lokal (RT)	1	2	3	4	5
7. Dalam satu tahun terakhir seberapa sering anda berpartisipasi dalam kegiatan antar kelompok tani pada tingkat di GAPOKTAN	1	2	3	4	5
8. Seberapa sering anda terlibat pada kegiatan di tingkat kecamatan atau di atasnya	1	2	3	4	5
9. Seberapa sering anda berbagi sarana produksi pertanian (misalnya Pupuk, bibit, atau peralatan tani) dengan petani lain	1	2	3	4	5

APPENDIX 1. RESEARCH QUESTIONNAIRE (In Indonesian language)

4

10. Dalam satu tahun terakhir seberapa sering anda memberikan sumbangan uang/barang/donor darah untuk kepentingan sosial

1 2 3 4 5

COMMON RULE, NORM AND SANCTION

Untuk setiap pernyataan:

- √ 1 Sangat tidak setuju
- √ 2 Tidak setuju
- √ 3 Antara setuju dan tidak setuju
- √ 4 Setuju
- √ 5 Sangat Setuju

1. Pemeritah hendaknya ikut berperan mengatur praktek-praktek pemanfaatan sumber daya alam (hutan, air dan tanah) untuk pelestariannya	1	2	3	4	5
2. Praktek pemanfaatan sumber daya alam (hutan, air dan tanah) Juga perlu diatur melalui kesepakatan masyarakat lokal setempat	1	2	3	4	5
3. Bersedia mengikuti program-program kerja pertanian yang dibuat pada tingkat Kelompok tani/GAPOKTAN/pemerintah desa	1	2	3	4	5
4. Bersedia mengikuti program-program pertanian yang turun dari pemerintah kecamatan/Kab/Negara	1	2	3	4	5
5. Bertani dilahan miring hendaknya memperhatikan usaha-usaha pencegahan, erosi tanah melalui terasering dan penanaman pokok kayu	1	2	3	4	5
6. Penggunaan pupuk kimia secara berlebihan dapat merusak tanah dan mencemari lingkungan	1	2	3	4	5
7. Penggunaan pestisida kimia dapat membahayakan diri dan konsumen	1	2	3	4	5
8. Lebih baik bertindak mengurangi input kimia dalam praktek bertani di lahan miring	1	2	3	4	5

CONNECTEDNESS, NETWORK AND GROUP

Untuk setiap pertanyaan:

- √ 1 Tidak pernah
- √ 2 hampir tidak pernah/sekali saja
- √ 3 kadang-kadang /dalam frekwensi 2
- √ 4 Agak sering /dalam frekwensi 3 kali
- √ 5 Sering /lebih dari 3 kali

1.	Dalam satu tahun terakhir, seberapa sering melakukan kontak dan komunikasi dengan saudara dekat untuk mengaggas beberapa hal menyangkut masalah pertanian	1	2	3	4	5
2.	Dalam satu tahun terakhir, seberapa sering melakukan kontak dan komunikasi dengan saudara jauh untuk mengaggas beberapa hal menyangkut masalah pertanian	1	2	3	4	5
3.	Dalam satu tahun terakhir, seberapa sering melakukan kontak dan komunikasi dengan tetangga/petani lokal untuk mengaggas beberapa hal menyangkut pertanian	1	2	3	4	5
4.	Dalam satu tahun terakhir, seberapa sering melakukan kontak dan komunikasi dengan petani dan organisasi petani di luar desa atau daerahnya untuk mengaggas beberapa hal menyangkut pertanian	1	2	3	4	5
5.	Dalam satu tahun terakhir, seberapa sering berkegiatan yang mencerminkan keinginan atas terbentuknya kelompok tani di desanya <u>atau</u> berkegiatan yang mencerminkan usaha-usaha memajukan kelompok tani yang sudah ada	1	2	3	4	5
6.	Dalam satu tahun terakhir, seberapa sering anda aktif mengurus organisasi/lembaga tani di tingkat lokal	1	2	3	4	5
7.	Dalam setahun terakhir, aktif mengurus organisasi/lembaga petani di tingkat GAPOKTAN atau Kecamatan	1	2	3	4	5
8.	Dalam setahun terakhir berpartisipasi aktif pada LSM yang berhubungan dengan pertanian	1	2	3	4	5

BAGIAN III MODAL MANUSIA (HUMAN CAPITAL)

Untuk setiap pertanyaan:

- √ 1 Tidak pernah
 - √ 2 hampir tidak pernah (sesekali saja)
 - √ 3 kadang-kadang (dalam frekwensi 2 kali)
 - √ 4 Sering (dalam 3 kali)
 - √ 5 Selalu (rutin)
- | | | | | | |
|---|---|---|---|---|---|
| 1. Dalam setahun terakhir apakah anda selalu merasa dalam keadaan sehat | 1 | 2 | 3 | 4 | 5 |
| 2. Dalam setahun terakhir seberapa sering anda mengunjungi puskesmas/dokter/ahli medis untuk melakukan check up/perawatan pencegahan penyakit | 1 | 2 | 3 | 4 | 5 |
| 3. Mengonsumsi sumber karbohidrat (singkong/ kentang,/nasi) dalam 3 kali makan setiap hari | 1 | 2 | 3 | 4 | 5 |
| 4. Mengonsumsi lauk sumber protein (tempe/tahu/daging/ikan dalam 3 kali makan setiap hari | 1 | 2 | 3 | 4 | 5 |
| 5. Mengonsumsi sayuran dan buah dalam 3 kali makan setiap hari | 1 | 2 | 3 | 4 | 5 |
| 6. Dalam setahun terakhir, seberapa sering anda mendapat saran dari rekan tani/Penyuluh/LSM/Sponsor untuk mengurangi input kimia | 1 | 2 | 3 | 4 | 5 |
| 7. Dalam setahun terakhir seberapa sering anda mendapatkan informasi dan penyuluhan bertani dari Penyuluh/Dinas/LSM/Sponsor lain | 1 | 2 | 3 | 4 | 5 |
| 8. Dalam setahun terakhir seberapa sering anda mendapatkan penyuluhan mengenai bertani di lahan miring | 1 | 2 | 3 | 4 | 5 |
| 9. Dalam setahun terakhir, seberapa sering anda mendapatkan penyuluhan tentang bertani organik | 1 | 2 | 3 | 4 | 5 |
| 10. Dalam setahun terakhir, seberapa sering anda mendapatkan pelatihan bertani dari dinas pertanian/LSM/sponsor lain | 1 | 2 | 3 | 4 | 5 |
| 11. Dalam setahun terakhir, seberapa sering anda mendapatkan pelatihan bertani secara organik | 1 | 2 | 3 | 4 | 5 |

BAGIAN IV MODAL FINANSIAL (Financial Capital)

Untuk setiap pertanyaan:

- √ 1 Tidak pernah
- √ 2 hampir tidak pernah
- √ 3 kadang-kadang
- √ 4 Sering
- √ 5 Selalu

1. Mempunyai uang tunai yang cukup untuk keperluan dasar sehari-hari setiap bulannya	1	2	3	4	5
2. Mempunyai tabungan (boleh dalam bentuk ternak) untuk keperluan mendesak setiap bulannya	1	2	3	4	5
3. Mempunyai cukup uang pribadi untuk modal bertani seperti yang biasa dilakukan	1	2	3	4	5
4. Memiliki kemampuan untuk membeli pupuk dan pestisida organic maupun kimia	1	2	3	4	5
5. Uang hasil penjualan panen dapat dijadikan sebagai modal bertani kembali	1	2	3	4	5
6. Hasil pertanian dapat mencukupi kebutuhan konsumsi keluarga sehari-hari	1	2	3	4	5
7. Uang hasil penjualan panen yang dijual cukup untuk memenuhi kebutuhan keuangan keluarga sehari-hari setiap bulannya	1	2	3	4	5
8. Mempunyai sumber penghasilan lain dari selain bertani	1	2	3	4	5
9. Mempunyai anggota keluarga yang dapat bekerja dan membantu penghasilan Keluarga	1	2	3	4	5
10. Mendapatkan kemudahan pinjaman /kredit (Koperasi/Bank/) untuk modal bertani	1	2	3	4	5
11. Berada pada status tidak berhutang dengan tetangga	1	2	3	4	5
12. Dipandang sebagai warga kecukupan sehingga tidak menerima BLT atau bantuan lain	1	2	3	4	5

BAGIAN V MODAL SUMBER DAYA ALAM (NATURAL CAPITAL)

Untuk setiap Pernyataan:

- √ 1 Sangat tidak setuju
- √ 2 Tidak Setuju
- √ 3 antara setuju dan tidak setuju
- √ 4 Setuju
- √ 5 Sangat setuju

1. Air untuk bertani mudah didapatkan dan murah	1	2	3	4	5
2. Tanah pertanian yang saudara miliki adalah tanah yang subur	1	2	3	4	5
3. Lahan pertanian yang anda miliki hanya sesuai untuk tanaman pertanian tertentu	1	2	3	4	5
4. Mengetahui bahwa lingkungan pegunungan hanya memungkinkan jenis tanaman Tertentu untuk ditanam	1	2	3	4	5
5. Lahan pertanian anda yang miring mudah mengalami erosi	1	2	3	4	5
6. Lahan pertanian anda mudah kehilangan kesuburan	1	2	3	4	5
7. Jika diperlukan, anda tidak pernah kesulitan mendapatkan mulsa alami dan tanaman kayu untuk mencegah erosi/longsor	1	2	3	4	5
8. Anda selalu mudah mendapatkan pupuk kandang dan kompos secara cukup untuk lahan yang dimiliki	1	2	3	4	5

BAGIAN VI MODAL SARANA PRODUKSI ALAT dan INFRASTRUKTUR (PHYSICAL CAPITAL)

- √ 1 Tidak pernah
- √ 2 hampir tidak pernah
- √ 3 kadang-kadang
- √ 4 Sering
- √ 5 Selalu

1. Mempunyai kemudahan mendapatkan air dari saluran air	1	2	3	4	5
2. Mempunyai kemudahan akan sarana transportasi (jalan dan kendaraan) untuk menjual hasil pertanian	1	2	3	4	5
3. Terdapat agen/toko/koperasi yang menjual pupuk dan pestisida organik pabrikan yang mudah dijangkau	1	2	3	4	5
4. Menggunakan pupuk organik buatan pabrik pada setiap tindakan pemeliharaan	1	2	3	4	5
5. Menggunakan pestisida buatan pabrik pada setiap tindakan	1	2	3	4	5
6. Menggunakan peralatan bertani sederhana/bukan mesin yang dimiliki sendiri	1	2	3	4	5
7. Menggunakan mulsa plastik	1	2	3	4	5
8. Mampu melakukan manajemen lahan miring dengan menerapkan system teras, guludan dan parit-parit untuk mencegah erosi tanah dan pelindihan hara	1	2	3	4	5
9. Mempunyai kemudahan mendapatkan alat/sarana untuk memroses hasil panen	1	2	3	4	5

**BAGIAN VII INCENTIVES
Insentif Pasar (Market signal)**

Untuk setiap pertanyaan/untuk item tertentu

- √ 1 Tidak pernah
- √ 2 hampir tidak pernah/dalam luasan sedikit sekali (misalnya hanya di pematang)
- √ 3 kadang-kadang/dalam luasan kurang lebih separo lahan yang dimiliki
- √ 4 Sering/dalam sebagian besar luasan lahan yang dimiliki
- √ 5 Hampir selalu atau pada seuruh lahan yang dimiliki

1. Mencari informasi mengenai harga terbaru	1	2	3	4	5
2. Mencari informasi mengenai komoditas pertanian yang sedang laku	1	2	3	4	5
3. Menanami lahan dengan pertimbangan penyesuaian jenis tanaman dengan pasokan, jumlah permintaan dan harga setelah panen	1	2	3	4	5
4. Menanami lahan dengan komoditas baru yang banyak diserap oleh pasar dan mendatangkan keuntungan	1	2	3	4	5
5. Menanam lahan secara non organik karena hasilnya lebih baik dan lebih mudah dipasarkan	1	2	3	4	5
6. Menanami lahan dengan komoditas pertanian yang hanya untuk dijual	1	2	3	4	5

**BAGIAN VIII INCENTIVES
Insentif Pemerintah (Governmental signal)**

Untuk setiap pertanyaan:

- √ 1 Tidak pernah
- √ 2 hampir tidak pernah
- √ 3 kadang-kadang
- √ 4 Sering
- √ 5 Selalu

Menurut anda apakah pemerintah :

1. Mendukung sektor pertanian organic/ramah lingkungan dengan menyediakan, menambah dan memperbaiki infrastruktur pertanian (misalnya sistem air/ jalan/pasar/Koperasi)	1	2	3	4	5
2. Menjaga suplai atau memberikan subsidi atas pupuk organic pabrik	1	2	3	4	5
3. Melalui penyuluh, aparat desa atau kader, memberikan pengetahuan mengenai pertanian upland	1	2	3	4	5
4. Melalui penyuluh, desa, atau kader, mensosialisasikan pertanian organic dan standarisasi produk pertanian organik	1	2	3	4	5
5. Pemerintah melalui penyuluh/desa/kader melakukan pelatihan yang berhubungan dengan pertanian organic atau bentuk pertanian ramah lingkungan yang lain	1	2	3	4	5
6. Terdapat agen pemerintah/ institusi perguruan tinggi/LSM/Sponsor yang berperan mendampingi petani	1	2	3	4	5
7. Pemerintah mengadakan training/pelatihan pengolahan hasil pertanian	1	2	3	4	5
8. Pemerintah memberikan serangkaian kemudahan finansial untuk modal bertani dalam berbagai bentuk	1	2	3	4	5
9. Menjamin pasar dan harga di tingkat petani agar petani organik terhindar dari resiko kerugian	1	2	3	4	5

Bagian IX Variabel bergantung (Keputusan Bertani)

Pertanyaan mengungkapkan tingkat keseringan dalam 10 kali tanam

Untuk setiap pertanyaan:

√ 1 Tidak pernah

√ 2 hampir tidak pernah (sese kali saja)

√ 3 kadang-kadang (dalam 2 kali)

√ 4 Sering (absen dalam 2 kali)

√ 5 Selalu

1. Menanami lahan dengan banyak jenis lahan yang sama (polikultur)	1	2	3	4	5
2. Melakukan tanam seling dengan tanaman kayu menahun secara agroforestri dalam system lorong/surjan (<i>alley cropping</i>)	1	2	3	4	5
3. Menanam sekaligus dengan banyak jenis tanaman (<i>multiple cropping</i>) secara tumpang sari (<i>intercropping</i>) ataupun tumpang gilir (<i>relay cropping</i>)	1	2	3	4	5
4. Mengurangi penggunaan pupuk kimia atau tidak memakai	1	2	3	4	5
5. Mengurangi pestisida kimia atau tidak memakai	1	2	3	4	5
6. Melakukan pengendalian hama secara alami, secara organik	1	2	3	4	5
7. Menggunakan pupuk dan pestisida kimia dengan pengetahuan mengenai takaran yang diperlukan	1	2	3	4	5
8. Menggunakan rabuk kandang atau kompos sebagai media dasar utama setiap kali tanam	1	2	3	4	5
9. Hanya menggunakan pupuk dan pestisida organik	1	2	3	4	5
10. Memberakan lahan untuk mengistirahatkan lahan dan mengembalikan kondisi lahan	1	2	3	4	5
11. Melakukan sistem teras yang tegak lurus kemiringan untuk mencegah erosi dan longsor pada setiap penanaman	1	2	3	4	5
12. Menggunakan mulsa alami/buatan untuk mencegah erosi	1	2	3	4	5
13. Menanam dengan tanaman keras untuk mengurangi erosi dan longsor	1	2	3	4	5
14. Menanam dengan tanaman penambat nitrogen Untuk menambah kesuburan tanah	1	2	3	4	5

ADDITIONAL INCENTIVE

Untuk setiap pertanyaan:

- ✓ 1 Sangat tidak setuju
- ✓ 2 Tidak Setuju
- ✓ 3 Antara setuju dan tidak setuju
- ✓ 4 Setuju
- ✓ 5 Sangat setuju

1. Pemerintah pusat mengetahui keberadaan petani kecil di Indonesia	1	2	3	4	5
2. Pemerintah pusat telah memberikan perhatian terhadap keberadaan petani kecil di Indonesia	1	2	3	4	5
3. Pemerintah pusat telah membantu dan memberdayakan petani kecil di Indonesia	1	2	3	4	5
4. Pemerintah pusat telah menetapkan strategi yang sesuai pada petani kecil di Indonesia	1	2	3	4	5
5. Pemerintah pusat berniat mewujudkan konsep pertanian berkelanjutan	1	2	3	4	5
6. Pemerintah telah menerapkan strategi yang tepat dan sesuai untuk berbagai Tipe tani dan berbagai tipe pertanian	1	2	3	4	5
7. Pemerintah mendukung gerakan petani secara ramah lingkungan Atau bertani secara organic	1	2	3	4	5
8. Pemerintah cukup memberikan insentif bagi pengembangan pertanian Ramah lingkungan dan pertanian organik	1	2	3	4	5

Appendix 2, The result of the questionnaire (in total score)

SC: Social Capital

HC: Human Capital

FC: Financial Capital

PC: Physical Capital

NC: Natural Capital

MS: Market Signal

I: Incentive

FD: Farmer's Decision

Name	Total score							
	SC	HC	FC	PC	NC	MS	I	FD
Sri Lestari	87	31	33	29	30	15	10	29
Atmodiharjo	88	30	34	29	31	17	10	30
Giarno	87	30	36	30	31	17	11	29
Giyoto	90	28	37	34	31	14	11	31
Sonodikromo	89	31	36	31	30	13	11	31
Parmi	92	31	38	32	32	15	12	34
Karso	93	31	39	35	34	14	15	36
Prapto	90	31	38	33	30	13	13	31
Cipto Paino	91	27	39	35	30	13	15	36
Agus	88	32	40	34	26	13	14	30
Kromopawiro	91	32	37	31	29	14	11	33
Pawiro Diha	90	28	35	30	31	15	11	32
Patmo Warjo	87	28	33	29	30	16	10	30
Karto Pawir	93	27	38	33	28	12	14	35
Kromo Sento	91	29	36	32	31	13	11	33
Parto Paimi	89	33	37	32	34	16	12	31
Pawiro Suwi	91	34	38	32	33	15	11	33
Wahyono	87	33	35	30	31	13	11	30
Hartono	86	29	37	29	32	16	10	29
Sunari	88	28	39	35	32	17	17	30
Suharno	87	34	36	32	31	13	11	30
Haryanto	91	27	36	32	31	16	11	33
Cipto Sutar	89	30	35	30	30	14	11	31
Pawiro Suwi	94	27	37	35	36	16	14	39
Sulasmi	93	32	39	33	27	13	17	37
Sastro Wiyo	93	27	39	35	27	14	17	38
Tukiman	92	29	37	30	31	15	11	34
Pawiro Yatn	93	34	38	33	30	14	12	34
Mitro Mukid	91	30	38	32	31	14	16	33
Marso	89	34	37	35	30	17	11	31
Darno	87	30	36	28	29	16	11	29
Harso Yatno	87	26	38	33	29	17	12	31
Sodipono	92	27	38	33	30	15	15	37
Harso Wiyon	95	26	39	35	28	16	16	39
Darso Wiyon	94	30	37	34	29	14	13	38
Darto Paimi	98	30	38	36	27	16	14	40
Kromo	86	32	35	27	31	15	11	29
Atmo Gimam	90	34	38	31	32	15	12	33
Darto Wiyon	87	29	34	29	29	15	11	30
Sarmili	93	32	38	30	27	15	15	37
Parto Wiyon	93	31	35	32	32	16	12	34
Tarso wiyon	95	27	37	35	28	14	14	39

Karyo Dirjo	92	29	36	30	29	16	11	34
Suparso	95	32	36	33	31	13	11	37
Citro Suman	89	29	34	29	28	13	10	32
Marto Wiyon	92	29	35	32	28	16	11	34
Siswanto	87	29	36	30	38	14	12	30
Wignyo Tumi	91	28	35	32	26	14	12	33
Atmo Kasidi	89	33	37	32	29	16	12	33
Tarmi	93	27	37	35	28	13	12	34
Harni	86	32	34	29	29	14	10	29
Parjo	90	29	37	35	33	15	12	31
Sukardi	90	30	35	31	31	15	10	32
Citro Diyon	85	32	32	28	34	14	10	28
Sutarno	86	28	32	28	33	16	10	28
Darmo Wiyon	86	29	33	27	32	16	10	28
Hadi Sunars	90	30	38	31	35	15	14	32
Atmo Kliwon	87	30	36	28	32	15	12	30
Citro Wiyon	92	30	36	31	34	13	12	34
Darso Sarno	93	26	37	32	33	14	12	34
Sugimin	92	30	36	35	30	14	11	34
Marso Wiyon	92	26	36	35	27	13	12	34
Karto Wiyon	90	34	36	33	28	14	11	34
Pawiro Wiyo	94	30	37	35	26	15	12	35
Parlan	95	26	37	30	30	14	10	36
Pawirorejo	96	28	38	28	27	13	15	37
Wardi	96	26	36	35	26	14	12	36
Padmo Wiyon	91	26	37	32	28	14	12	35
Cipto Sunar	95	28	37	35	28	13	14	38
Darso Suwar	94	25	35	32	28	13	10	36
Sonorejo	93	24	34	30	28	15	11	34
Karyotomo	94	26	30	35	28	13	10	35
Padmo Sumar	92	26	35	30	28	14	13	34
Suratno	92	26	36	34	26	14	12	34
Padmo Wiyon	92	26	33	30	26	14	10	35
Darmanto	92	34	37	35	27	15	10	34
Citro Mardi	95	28	36	35	30	13	13	36
Cipto Wiyon	91	26	34	35	26	12	11	34
Setyono	94	28	33	35	28	13	10	38
Daryatno	77	29	34	34	27	14	10	33
Harso Tumin	94	28	36	35	28	12	13	35
Harso Sumin	83	26	35	28	25	13	11	32
Wagimin	90	26	33	27	30	14	11	32
Wagiman	95	28	34	35	27	16	11	36
Tugino	88	26	33	29	27	13	10	31
Tugiono	86	26	32	27	25	13	10	30
Daliman	74	30	30	27	27	14	10	33
Marto Harso	91	28	34	27	26	14	10	33
Pawiro Rejo	76	26	35	35	28	14	11	35
Atmo Setu	94	26	30	35	28	15	10	35
Sucipto	84	27	32	28	29	13	10	30
Dartono	93	27	36	35	26	13	16	37
Ngadi	81	28	33	35	29	13	17	37
Sutino	76	27	34	35	31	14	16	36
Parto Narso	83	28	33	35	36	15	16	36
Mitro Sugim	89	27	34	35	29	14	15	36
Hadi Warjon	83	28	34	35	28	13	16	37
Sardi	84	28	36	35	27	15	16	37

Wiro Sukart	80	30	39	30	25	13	13	34
Wagimo	87	25	38	31	31	14	12	34
Wagimin	83	26	40	35	29	15	13	37
Harso Wiyon	78	25	36	29	32	14	11	33
Suhadi krom	82	30	37	35	28	14	13	37
Paryono	87	27	38	31	29	15	10	33
Minto Widod	81	31	38	35	27	14	13	38
Kardi	86	30	41	35	27	13	16	38
Supri	86	30	47	35	30	13	20	37
Sastro Wiyo	83	29	41	35	27	16	19	38
Atmo Tarmo	78	33	38	32	35	15	15	35
Karyo Wagiy	89	34	37	32	30	13	11	33
Suwarno	75	32	39	28	28	14	13	34
Wiro Sutary	80	30	40	32	28	14	15	37
Marto Suwit	82	27	39	31	28	14	14	34
Harno	80	27	38	35	29	16	15	39
Narto	84	35	35	33	32	17	13	39
Dalimin	86	31	38	30	34	13	11	33
Narmono	89	30	40	35	27	14	15	38
Sarwanto	77	30	36	27	26	15	14	32
Sukarmin	78	29	41	32	27	15	15	37
Harmono	85	29	41	35	28	13	17	36
Sarwono	92	32	41	32	28	14	15	37
Sudal	87	29	38	32	29	13	16	36
Karyono	71	29	47	35	32	15	20	38
Sugiman	81	29	38	33	29	16	10	31
Marto Tumir	78	30	39	35	26	15	10	35
Cipto Marto	83	29	39	35	28	13	14	37
Harso Tumij	82	28	31	27	27	14	10	29
Harso Paimo	74	25	34	30	30	15	10	33
Ngadiso	78	28	38	32	29	16	10	34
Atmo Saino	89	30	37	30	31	15	10	34
Sukarjo	83	28	41	35	29	14	13	37
Sri Hartant	86	30	37	35	29	15	14	35
Tugino	82	28	44	30	32	15	10	33
Mugiyo	82	36	40	35	27	14	13	37
Samino	84	30	39	35	26	14	10	35
Sadino	83	33	38	35	28	14	11	35
Sukardi	77	30	38	35	26	15	11	36
Padiyo	79	36	38	35	28	14	12	35
Maridi	79	27	36	33	29	15	12	36
Sutadi	83	27	40	35	29	15	14	38
Sugiarto	89	30	36	35	28	15	14	36
Wagimo	89	29	39	34	29	14	14	36
Suharso	80	27	37	35	27	15	11	37
Jumino	80	30	37	35	26	16	15	37
Sudadi	77	32	39	34	31	14	14	36
Sutrisno	81	32	37	35	28	15	12	36
Sadimin	89	35	36	35	33	14	12	39
Suparno	91	32	39	35	32	16	17	38
Cipto Supon	94	32	40	35	33	15	15	39
Darto	89	32	35	35	34	16	11	33
Larno	94	32	44	36	34	14	22	41
Parto Wiyon	96	29	35	30	33	15	17	34
Pwiro Sutar	82	32	39	35	32	17	20	37
Mijanto	96	32	37	35	33	15	16	35

Wiryo Suprn	98	32	39	35	33	15	15	35
Sutarmo	87	29	37	31	33	15	15	34
Broto	97	30	37	30	34	18	14	33
Pawiro Suka	94	32	41	35	34	16	20	37
Sunarno	95	32	39	35	34	18	19	36
Sujono	95	35	42	30	37	13	17	35
Slamet	92	34	39	30	33	18	16	34
Sumardi	96	31	37	35	35	17	16	35
Tri Sukardi	98	34	38	30	31	13	15	31
Sugiyono	107	34	41	35	33	15	20	39
Siswandi	99	36	39	35	34	18	19	36
Toni Tiawan	96	36	35	30	32	15	17	32
Kasbi	95	36	39	34	32	16	14	32
Hardi	93	35	37	30	33	17	15	34
Sarino	92	36	43	29	35	19	15	31
Sri Santoso	115	36	49	29	35	23	11	32
Kusno	93	36	42	35	33	18	20	39
Paryono	95	26	37	31	32	14	19	32
Parmanto	92	32	39	35	32	14	20	39
Senen	92	37	41	35	33	14	10	38
Sukasman	98	33	38	35	33	16	19	39
Sugiyanto	109	38	39	35	33	14	10	38
Pairan	97	30	39	36	31	16	16	41
Muslim	94	27	40	29	31	14	16	38
Harman	98	34	38	35	30	15	18	38
Lilik	95	35	39	32	32	13	18	36
Ngatmodikro	99	36	38	29	32	15	12	37
Sumanto	110	36	55	35	35	20	10	35
Mugiman	99	29	33	31	28	16	10	28
Harni	100	30	38	35	29	19	11	35
Heri	95	30	36	35	29	16	11	35
Giyarto	109	35	43	35	33	18	15	39
Giyarsi	95	33	36	30	30	14	10	33
Sugino	100	33	38	35	29	17	16	37
Karto kardi	104	36	51	37	39	22	15	33
Sukiman	101	34	38	35	29	16	16	37
Tugimin	85	34	38	35	28	17	13	38
Karso	105	34	38	35	30	15	17	37
Karyono	94	36	38	35	30	15	18	37
Suparjo	96	36	35	35	30	17	13	37
Atmo Dirjo	92	37	46	35	30	14	13	35
Ngadiman	88	34	48	35	33	18	14	36
Wiryamtomo	94	36	37	35	30	14	15	36
Gino Hadiwi	96	37	38	35	35	21	16	37
Wiro Sumant	105	35	48	35	37	21	10	36
Karo Suwiry	79	34	39	35	37	15	13	36
Paidi	100	36	43	35	38	21	16	35
Tri harsono	94	36	42	35	35	21	15	36
Nur Tugiyono	89	32	38	35	34	19	15	34
Suharno Suk	95	38	37	35	39	24	17	37
Sutarno	107	36	43	35	39	21	20	37
Simun	88	36	41	31	39	21	13	32
Joko Mulyon	107	39	38	34	39	18	20	38
Gunawan	86	30	38	31	37	14	15	35
Suparna	104	36	38	35	35	14	13	36
Sutaryo	103	36	33	34	33	21	15	33

Wagino	89	34	38	36	33	18	15	37
Wagino	96	31	36	33	33	19	15	35
Fathurahman	97	36	37	35	33	18	15	41
Wagino	99	35	37	35	35	18	15	38
Suparmanto	118	28	37	35	36	17	11	38
Sutarman	97	38	39	35	34	17	18	39
Pawirorejo	100	27	33	35	36	16	11	32
Ngadimin	107	35	39	35	40	18	15	36
Darmo Wiyon	104	27	43	34	36	15	10	32
Harso	113	34	36	35	36	16	16	41
Tugiyono	108	34	39	35	36	15	12	38
Wagiyo	118	34	31	35	38	19	11	38
Daliman	98	32	34	35	35	18	13	34
Sarino	94	35	36	34	36	15	14	35
Harsono	102	34	34	35	33	17	14	35
Suparmanto	95	35	33	31	37	15	15	35
Sutarji	92	34	38	34	34	17	12	33
Sadino	84	39	50	36	40	19	16	38
Maridi	84	37	53	34	41	19	11	35
Mugimin	104	34	45	34	37	18	17	40
Sutadi	104	38	50	36	36	19	18	35
Sugiyanto	112	39	46	35	37	22	20	40
Sarno	104	39	44	35	38	21	20	39
Tarmo	103	38	50	35	35	16	17	35
Somin	95	39	46	35	38	17	20	41
Siman	108	39	46	35	37	18	16	34
Koes	98	39	54	36	37	16	21	43
Catur Suhar	107	39	48	35	36	19	17	36
Sarjono	110	39	38	35	37	17	16	35
Suyono	109	42	49	35	37	17	20	35
Bejo Supriy	126	39	50	35	41	19	17	36
Supar	84	39	46	35	40	17	14	35
Padiyo	94	39	42	35	42	18	20	39
Bejo	94	39	40	35	35	15	20	40
Giyarto	96	40	38	35	35	18	20	40
Sutar	99	45	47	35	40	16	22	43
Kardi	116	39	53	35	40	18	15	38
Sumino	118	39	49	35	39	20	20	38
Mulyono	116	39	54	36	40	19	19	42
Setu	103	41	43	35	41	16	20	41
Sular	88	38	51	35	37	18	20	38
Mano	109	39	45	35	38	15	15	36
Tugino	95	39	39	35	36	18	20	40
Atmo Tugima	109	39	40	35	37	10	18	39
Sujiman	112	39	40	35	37	19	18	37
Sujarto	96	39	48	35	40	20	20	41
Margono	113	38	54	35	41	18	16	36
Warso	110	39	50	36	44	20	17	38
Siman	102	36	39	36	35	20	20	41
Setyono	110	39	45	36	43	21	21	41
Paryono	102	42	57	36	42	19	21	45
Paidi	88	37	51	36	42	22	17	42
Senen	108	39	47	36	44	17	21	42
Supardi	110	44	50	33	44	18	22	44
Juniman	97	40	37	37	37	16	20	40
Sunarno	112	42	44	35	41	16	22	43

Sardono	117	41	47	35	44	19	21	45
Sarmono	116	40	55	35	40	17	20	43
Suyanto	112	39	50	35	42	17	19	35
Sutono	106	39	56	35	41	17	23	44
Sinung P	111	38	49	35	40	21	17	39
Sutarno	99	39	43	36	40	21	12	43
Hartono	107	41	52	36	40	17	19	42
Wiryo	103	39	46	36	42	19	20	40
Sugiyono	115	42	46	36	43	18	20	43
Suratno	121	39	46	36	43	19	20	40
Suwito	94	40	54	36	43	15	20	41
Wardiyem	103	40	45	36	41	14	21	43
Wilarso	109	42	51	30	38	18	17	41
Pri Parman	99	37	41	34	37	15	20	37
Purwono	113	41	54	33	37	22	20	42
Wahid	110	39	48	36	39	19	20	39
Tarto	111	40	48	36	40	19	20	39
Wilarto	107	34	46	35	40	14	17	38
Lardi	104	40	50	36	39	16	20	40
Giyatno	115	40	53	34	41	17	19	41
Tambar	136	46	49	34	41	20	23	40
Suwarno	110	41	43	36	39	16	21	45
Hartanto	114	40	53	36	42	22	17	37
Sularso	94	40	52	36	42	17	20	43
Bejo	109	40	54	36	43	20	20	42
Giyono	91	40	53	35	45	19	20	42
Sugimin	116	40	43	37	42	17	19	40
Daryono	119	40	51	37	42	19	20	42
Suwarso	114	40	53	37	42	20	20	44
Sukarmin	100	37	53	38	42	18	17	40
Supaman	120	38	50	34	42	19	20	41
Larso	110	31	54	37	38	16	15	37
Lardi	104	38	38	37	32	15	20	42
Wagimin	107	40	41	37	28	15	17	40
Sutomo	100	40	48	37	32	16	16	39
Kromo Suryo	93	34	45	30	35	15	15	37
Paijo	86	40	35	37	34	17	14	41
Paryono	113	39	35	37	35	18	16	40
Jumali	101	41	41	37	30	16	17	42
Suyoto	102	32	33	30	30	15	16	40
Sumarwanto	106	31	54	35	38	16	15	37
Sono	117	37	56	33	36	16	17	36
Tamin	106	33	37	28	34	12	16	36
Sartono	112	39	49	37	40	16	20	39
Waluyo	105	37	32	30	32	14	15	35
Masri	105	34	30	28	32	13	15	37
Jumadi	102	36	33	37	34	14	23	44
Suyanto	99	35	36	29	31	17	17	38
Sularso	103	44	44	30	37	17	21	47
Suparto	104	42	47	27	38	15	19	44
Sukiman	97	36	37	25	27	13	19	40
Tarwi	107	36	31	29	29	14	14	36
Jumino	93	36	37	37	32	15	19	39
Kondo	102	36	38	37	29	14	19	44
Wakidi	112	36	38	27	32	13	19	40
Pardiyanto	115	41	45	37	35	14	20	40

Tarman	105	35	46	31	37	15	20	36
Tukiyem	102	38	40	37	29	14	20	40
Rusmanto	107	32	31	33	33	16	15	39
Eko	96	41	41	37	32	13	20	44
Supono	116	39	36	35	34	14	17	40
Purwanto	112	40	37	29	32	16	20	40
Darto	104	27	46	35	30	15	12	36
Agus	108	32	48	29	27	15	20	38
Sularso	104	38	41	32	29	15	15	40
Paimin	106	39	40	33	28	12	20	40
Ariyo	111	36	46	36	37	17	20	39
Paidi	99	31	42	25	35	16	11	34
Ayub	110	34	46	35	38	17	14	36
Paidi	90	40	36	29	28	18	20	38
Tugiman	111	40	39	37	30	17	20	42
Giyem	95	37	44	37	32	18	17	41
Giyo	93	40	42	37	26	12	19	42
Sukarso	105	40	37	37	30	14	17	41
Sukiyem	102	40	42	37	26	15	16	39
Suroto	94	39	42	37	32	15	17	41
Sujiarto	108	39	54	27	36	18	15	39
Sulardiyant	104	39	37	25	32	14	20	39
Pujianto	110	40	46	30	39	18	19	41
Pardiyono	115	36	56	29	30	19	14	39
Parjono	94	40	44	37	30	17	16	41
Sainem	104	40	36	37	28	15	20	43
Daliman	102	39	47	37	37	19	16	42
Waginah	87	37	41	37	31	16	16	39
Pairan	112	39	50	37	38	17	15	40
Wawan	99	43	48	37	28	15	19	46
Giyato	108	30	30	37	27	17	18	37
Budiman	110	39	42	37	31	15	19	42
Sukarmin	92	39	32	37	28	19	20	40
Ngatmin	112	40	45	37	29	16	20	41
Sukamto	105	41	47	37	27	16	17	44
Paiman	110	40	29	37	31	17	20	41
Supono	97	40	38	37	28	18	19	41
Nurhadi	102	37	34	29	28	18	17	39
Giyono	102	37	38	37	30	18	20	41
Giyarso	99	36	35	29	29	17	16	40
Simun	110	40	38	30	27	17	19	38
Harsanto	87	39	44	37	30	18	19	42
Supadmo	89	39	40	37	30	16	20	40
Aris	99	41	44	32	30	18	20	41
Tukimin	107	32	39	25	30	18	15	32
Wiryamtomo	111	36	46	32	37	18	18	39
Suparno	97	37	42	32	37	18	16	39
Warno	104	43	44	33	35	17	20	47
Kasiman	115	39	37	29	33	17	16	40
Sularno	108	39	42	37	31	16	23	46
Senen	125	37	35	37	33	17	19	43
Sumarto	100	40	40	37	33	18	20	45
Sumardi	101	34	32	29	37	18	19	38
Paeran	100	39	37	30	35	17	19	38
Padmanto	102	40	50	37	39	18	17	43
Warsono	110	43	53	37	40	19	20	46

Sukiman	101	39	51	29	30	17	19	38
Paidi	102	34	48	37	27	16	17	42
Edi Sudarso	96	38	43	26	31	16	11	32
Kadiman	95	37	46	37	29	17	18	43
Parmo	113	34	55	32	34	15	13	34
Sularto	94	32	39	37	32	18	18	42
Sarmo	95	35	35	25	27	17	13	38
Sri wagiyo	105	34	41	32	33	19	11	38
Marli Wahyu	102	35	41	28	35	17	12	37
Katno	88	39	34	31	31	16	13	41
Setu Darmad	99	34	44	26	28	15	13	38
Kadiman	98	35	48	30	30	15	14	39
Paidi Darmo	111	38	43	28	33	16	14	39
Bambang	108	38	39	37	27	13	13	40
Gino	112	43	43	37	37	16	19	45
Suroso	98	36	49	37	29	16	16	39
Sunaryo	83	34	51	30	30	16	14	38
Sugiarto	106	35	38	37	31	15	15	39
Suparman	82	33	45	30	28	17	15	38
Supadiyo	103	33	45	27	28	15	13	38
Karso	85	32	43	27	33	18	14	36
Sukasman	105	37	43	31	37	15	14	39
Sutriman	98	34	38	29	35	17	14	37
Bejo	106	33	41	30	31	14	15	36
Sunarto	105	37	41	30	33	13	19	42
Sunarman	80	30	34	30	33	15	12	35
Winarto	109	32	39	28	31	14	15	36
Sularjito	93	40	40	37	37	16	19	42
Harjito	104	34	44	37	30	15	13	40
Harmanto	84	35	42	30	31	17	14	43

Appendix 3 Regression Analysis

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	Gonincentiv, Marketsignal, Physicalcapital, Soccapital, Financialcapital, Naturalcapital, Humancapital ^a		Enter

a. All requested variables entered.

b. Dependent Variable: Decision

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.806 ^a	.649	.643	2.28516	1.304

a. Predictors: (Constant), Gonincentiv, Marketsignal, Physicalcapital, Soccapital, Financialcapital, Naturalcapital, Humancapital

b. Dependent Variable: Decision

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3864.219	7	552.031	105.714	.000 ^a
	Residual	2088.779	400	5.222		
	Total	5952.998	407			

a. Predictors: (Constant), Gonincentiv, Marketsignal, Physicalcapital, Soccapital, Financialcapital, Naturalcapital, Humancapital

b. Dependent Variable: Decision

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	12.488	1.560		8.007	.000		
	Soccapital	.033	.014	.093	2.369	.018	.574	1.742
	Humancapital	.234	.038	.296	6.191	.000	.383	2.608
	Financialcapital	.071	.026	.110	2.771	.006	.555	1.803
	Physicalcapital	.284	.041	.226	6.927	.000	.820	1.219
	Naturalcapital	-.149	.036	-.181	-4.153	.000	.460	2.173
	Marketsignal	-.092	.065	-.054	-1.415	.158	.612	1.634
	Gonincentiv	.483	.046	.446	10.520	.000	.488	2.049

a. Dependent Variable: Decision

APPENDIX 4 VILLAGE PROFILE

SEMI STRUCTURED INTERVIEW

1. Harmanto

The head of the division of extension agent, Department of Agriculture of Karanganyar.

The district of Karanganyar has planned organic farming as the main strategy of farming towards sustainable agriculture. Yet, Karanganyar has urged its farmer to reduce the use of chemical input and back to use organic input (manufactured or stocks of organic input from livestock and compost). To support the local government' programme of organic farming extension agent (the well-trained people in agriculture) graduated has been hired. Extension agent function mainly to serve all about the agricultural problem that faced by the farmers as well as to diffuse the programme that ran by the local government. In every sub district there is one co-ordinator for the extension agent that served to direct some extension agent under his responsibility. Joko Santoso is the co-ordinator for the sub district of Tawangmangu. There are two extension agent provided for the four upland villages. Sadi Mulyono is the co-ordinator for the sub district of Ngargoyoso. There are two extension agents (for two villages) under his responsibility. The main function of co-ordinator is to make report related to his tasks.

2. Warjono

Extension agent for Gondosuli, Blumbang and Kalisoro (Tawangmangu)

The local government has urged the upland farmer to back to organic farming due to the negative externalities of using chemical input towards the soil quality. The programme to back to organic farming is in the stage of socialization. Urging farmer to use the green manure and serving the farmer with training to produce green manure are the main activities besides performing common assistances such as giving the guidance of performing particular cultivation technique and giving information about pest control. However, despite efforts that have been conducted, the farmers are still suffered from performing organic farming. The problems are related to two main causes. First, there are only two or three extension agents that are responsible to cover many villages within the sub district. Hence, the extension agent is considered as overburdened making his work is considered as not optimum. Second is about the farmer's participation. Not all farmers become the member of the farmer group. If the assistance is available only at farmer group level, theses farmers will be excluded.

APPENDIX 4 VILLAGE PROFILE

3. Sriyono

Extension agent for Tengklik (Tawangmangu)

The organic farming that has been programmed by the local government has faced problem related with the low farmer's level of literacy. This low degree of literacy however, becomes a challenge that must be addressed by the extension agent.

4. Sadi Mulyono

Co-ordinator of the extension agent for Ngargoyoso

The extension agent has urged the upland farmer to conserve the steeper land and to reduce the use of chemical input. The main challenge is in changing farmer's behaviour as they are used to be familiar with the immediate and incredible effects of agricultural chemical input. As organic input still gives dissatisfaction results, farmer would be no longer interested with organic farming. The upland farmers also considered as unaware to conserve the steeper land due to their need to maximize the space for their commodities.

5. Sri Santoso

Farmer (opinion leader at Segoro Gunung)

The farmers possess a high degree of trust towards their families and neighbours and also trust towards the government and the NGO. As in many villages in Karanganyar, the upland farmers possess a very good social tie called '*gotong royong*' and '*sambatan*'. Credit for farmer is available, but as the farmers are subjected to the risk they are not interested to such credit. The chosen management whether environmentally friendly or not depend on the commodities and climatic condition. The local climatic condition has forced the farmer to use chemical pesticide due to the high prevalence of diseases.

6. Sutarno (Tengklik) and Suharsono (Blumbang)

Farmer (the *kader* or trained person)

The attitude to perform organic farming is low due to the low profitability to perform organic farming. In addition, the manufactured organic input is still considered as expensive.

APPENDIX 4 VILLAGE PROFILE

DISTRICT OF KARANGANYAR

Size area : 772,20 square kilometres
Upland Sub-Districts : Ngargoyoso and Tawangmangu

1. NGARGOYOSO (65,34 square kilometres²)

Upland Village : Berjo and Segorogunung

Land farm size for horticultural commodities: 282 hectares

a. Berjo.

This village is located at the western part of Lawu, there are 2 sub villages that are consider as upland, Berjo and Tlogo. At these sites, most of the agricultural commodities are cabbage, carrot, shallot and peas. The local farmers say their land as *lemah gemblung*, which is considered as less fertile. Farming commodities less varied. The farmers have performed a good multiple cropping strategy, the *tumpang sari*. Actually, they have less depended upon chemical fertilizer. Most of them have livestock. They have used livestock fertilizer, even they do not know to process their livestock manure into good fertilizer. Urea and TSP are the most fertilizer used there. There is no assistance from NGO and Extension agent. There is no farmer group there. Observations show that most farmers in this village are considered as poor. They heavily depend on land and forest.

b. Segorogunung

This village is located at the north side of Lawu. The NGO has assisted the farmers in this village (The LPTP). The extension agent has also available to give assistance. Farmer group are identified. There are three companies (Indofood, Acidatama and BPR Binsani) offered an agricultural co-operation to farmers to cultivate potato and garlic. Indofood is the supplier for the seed stock as well as the buyer for the harvested commodities; Acidatama is the the supplier for the manufactured organic fertilizer; whereas BPR Binsani is the credit provider. Farmers in this village have better welfare than in Berjo. They begin to look for other job opportunities from their surrounding municipal.

APPENDIX 4 VILLAGE PROFILE

2. KECAMATAN TAWANGMANGU (70,03 km²) :

Upland villages : Tengklik, Kalisoro, Blumbang, Gondosuli

Land farm size for horticultural commodities 339.5 hectares

a. Tengklik

This village is separated to Berjo only by small hill, Cempurung. However, the land type is slightly different. In Tengklik farmers called their land as *lemah greges* which is considered as more fertile than the *lemah gemblung* in Berjo. Extension agent is less active. There is no NGO assistance. Farmer group are recognized with a routinely meeting (every 35 days). As in Segorogunung, the farmers in this village have better welfare than in Berjo. They begin to look for another job opportunity from their surrounding municipal.

b. Kalisoro

This village is located upward from Tengklik. Extension agent is less active. Booming of onion at 1990 has made the farmers in this village are considered as has a good welfare. Many of them invested their financial capital in many non-agricultural sectors. Many farmers in this village are successful businessperson in non-agricultural sectors. Many of them are civil servant. The financial capacity in this village is categorized as good. Many other job opportunities related with tourism is also available. Most of them have begun to be less depending on land and forest. There is no NGO assistance. In this village a new commodity is introduced, the strawberry.

c. Blumbang

Blumbang and Kalisoro are considered as twin village. The farmers in these two villages are regarded as similar. In Blumbang, NGO and extension agent is more active than in other villages within the study site. Organic farming is initiated in this village. There are two prominent farmer groups, the POKJA KTB (*Kelompok Kerja Kelompok Tani Blumbang* or the working group of farmer at Blumbang) and the Puspahati. POKJ A KTB is more focused on the post harvesting technology whereas Puspahati is more focused on organic farming. Not all farmers become the member of both farmer groups.

d. Gondosuli

Gondosuli is the highest village. Many natural limitations can be found there, such as the lack of water and the extreme of temperature. The economic capacities of most farmers are moderate. Poor farmer prefer to cultivate in the way most upland farmer do. Rich farmer prefer strawberry as it provides better income. NGO assistance is absence. Extension agent is considered as less active to serve with assistance.

APPENDIX 4 VILLAGE PROFILE

SEMI STRUCTURED INTERVIEW

1. Harmanto

The head of the division of extension agent, Department of Agriculture of Karanganyar.

The district of Karanganyar has planned organic farming as the main strategy of farming towards sustainable agriculture. Yet, Karanganyar has urged its farmer to reduce the use of chemical input and back to use organic input (manufactured or stocks of organic input from livestock and compost). To support the local government' programme of organic farming extension agent (the well-trained people in agriculture) graduated has been hired. Extension agent function mainly to serve all about the agricultural problem that faced by the farmers as well as to diffuse the programme that ran by the local government. In every sub district there is one co-ordinator for the extension agent that served to direct some extension agent under his responsibility. Joko Santoso is the co-ordinator for the sub district of Tawangmangu. There are two extension agent provided for the four upland villages. Sadi Mulyono is the co-ordinator for the sub district of Ngargoyoso. There are two extension agents (for two villages) under his responsibility. The main function of co-ordinator is to make report related to his tasks.

2. Warjono

Extension agent for Gondosuli, Blumbang and Kalisoro (Tawangmangu)

The local government has urged the upland farmer to back to organic farming due to the negative externalities of using chemical input towards the soil quality. The programme to back to organic farming is in the stage of socialization. Urging farmer to use the green manure and serving the farmer with training to produce green manure are the main activities besides performing common assistances such as giving the guidance of performing particular cultivation technique and giving information about pest control. However, despite efforts that have been conducted, the farmers are still suffered from performing organic farming. The problems are related to two main causes. First, there are only two or three extension agents that are responsible to cover many villages within the sub district. Hence, the extension agent is considered as overburdened making his work is considered as not optimum. Second is about the farmer's participation. Not all farmers become the member of the farmer group. If the assistance is available only at farmer group level, theses farmers will be excluded.

APPENDIX 4 VILLAGE PROFILE

3. Sriyono

Extension agent for Tengklik (Tawangmangu)

The organic farming that has been programmed by the local government has faced problem related with the low farmer's level of literacy. This low degree of literacy however, becomes a challenge that must be addressed by the extension agent.

4. Sadi Mulyono

Co-ordinator of the extension agent for Ngargoyoso

The extension agent has urged the upland farmer to conserve the steeper land and to reduce the use of chemical input. The main challenge is in changing farmer's behaviour as they are used to be familiar with the immediate and incredible effects of agricultural chemical input. As organic input still gives dissatisfaction results, farmer would be no longer interested with organic farming. The upland farmers also considered as unaware to conserve the steeper land due to their need to maximize the space for their commodities.

5. Sri Santoso

Farmer (opinion leader at Segoro Gunung)

The farmers possess a high degree of trust towards their families and neighbours and also trust towards the government and the NGO. As in many villages in Karanganyar, the upland farmers possess a very good social tie called '*gotong royong*' and '*sambatan*'. Credit for farmer is available, but as the farmers are subjected to the risk they are not interested to such credit. The chosen management whether environmentally friendly or not depend on the commodities and climatic condition. The local climatic condition has forced the farmer to use chemical pesticide due to the high prevalence of diseases.

6. Sutarno (Tengklik) and Suharsono (Blumbang)

Farmer (the *kader* or trained person)

The attitude to perform organic farming is low due to the low profitability to perform organic farming. In addition, the manufactured organic input is still considered as expensive.