Indonesia - Good Growth Plan, 2014-2019

Syngenta

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Identification

SURVEY ID NUMBER
IDN_2014-2019_GGP-P_v01_EN_M_A_OCS

TITLE
Good Growth Plan, 2014-2019

COUNTRY

Name	Country code
Indonesia	IDN

STUDY TYPE
Agricultural Survey [ag/oth]

ABSTRACT
Syngenta is committed to increasing crop productivity and to using limited resources such as land, water and inputs more efficiently. Since 2014, Syngenta has been measuring trends in agricultural input efficiency on a global network of real farms. The Good Growth Plan dataset shows aggregated productivity and resource efficiency indicators by harvest year. The data has been collected from more than 4,000 farms and covers more than 20 different crops in 46 countries. The data (except USA data and for Barley in UK, Germany, Poland, Czech Republic, France and Spain) was collected, consolidated and reported by Kynetec (previously Market Probe), an independent market research agency. It can be used as benchmarks for crop yield and input efficiency.

KIND OF DATA
Sample survey data [ssd]

UNIT OF ANALYSIS
Agricultural holdings

Scope

NOTES
Data was collected on the usage of inputs, such as crop protection products, chemical fertilizer, seeding rates, labor hours, machinery usage hours, and marketable crop yield on a per hectare basis.

TOPICS

Topic	Vocabulary
Agriculture & Rural Development	FAO
Environment	FAO
Agricultural input efficiency	FAO

KEYWORDS

Keyword
Input efficiency
Crop productivity
Agriculture
The Good Growth Plan

Coverage

GEOGRAPHIC COVERAGE
National Coverage

Producers and sponsors

PRIMARY INVESTIGATORS

Name
Syngenta

PRODUCERS

Name	Role
Kynetec	Technical assistance

Sampling

SAMPLING PROCEDURE
A. Sample design
Farms are grouped in clusters, which represent a crop grown in an area with homogenous agro- ecological conditions and include comparable types of farms. The sample includes reference and benchmark farms. The reference farms were selected by Syngenta and the benchmark farms were randomly selected by Kynetec within the same cluster.

B. Sample size
Sample sizes for each cluster are determined with the aim to measure statistically significant increases in crop efficiency over time. This is done by Kynetec based on target productivity increases and assumptions regarding the variability of farm metrics in each cluster. The smaller the expected increase, the larger the sample size needed to measure significant differences over time. Variability within clusters is assumed based on public research and expert opinion. In addition, growers are also grouped in clusters as a means of keeping variances under control, as well as distinguishing between growers in terms of crop size, region and technological level. A minimum sample size of 20 interviews per cluster is needed. The minimum number of reference farms is 5 of 20. The optimal number of reference farms is 10 of 20 (balanced sample).

C. Selection procedure
The respondents were picked randomly using a “quota based random sampling” procedure. Growers were first randomly selected and then checked if they complied with the quotas for crops, region, farm size etc. To avoid clustering high number of interviews at one sampling point, interviewers were instructed to do a maximum of 5 interviews in one village.

BF Screened from Indonesia were selected based on the following criterion:

(a) Corn growers in East Java
- Location: East Java (Kediri and Probolinggo) and Aceh
- Innovative (early adopter); Progressive (keen to learn about agronomy and pests; willing to try new technology); Loyal (loyal to technology that can help them)
- making of technical drain (having irrigation system)
- marketing network for corn: post-harvest access to market (generally they sell 80% of their harvest)
- mid-tier (sub-optimal CP/SE use)
- influenced by fellow farmers and retailers
- may need longer credit

(b) Rice growers in West and East Java
- Location: West Java (Tasikmalaya), East Java (Kediri), Central Java (Blora, Cilacap, Kebumen), South Lampung
- The growers are progressive (keen to learn about agronomy and pests; willing to try new technology)
- Accustomed in using farming equipment and pesticide. (keen to learn about agronomy and pests; willing to try new technology)

- A long rice cultivating experience in his area (lots of experience in cultivating rice)
- willing to move forward in order to increase his productivity (same as progressive)
- have a soil that broad enough for the upcoming project
- have influence in his group (ability to influence others)
- mid-tier (sub-optimal CP/SE use)
- may need longer credit

Data Collection

DATES OF DATA COLLECTION

Start	End
2014	2019

DATA COLLECTION MODE
Face-to-face [f2f]

Questionnaires

QUESTIONNAIRES
Data collection tool for 2019 covered the following information:

(A) PRE- HARVEST INFORMATION

PART I: Screening
PART II: Contact Information
PART III: Farm Characteristics
a. Biodiversity conservation
b. Soil conservation
c. Soil erosion
d. Description of growing area
e. Training on crop cultivation and safety measures
PART IV: Farming Practices - Before Harvest
a. Planting and fruit development - Field crops
b. Planting and fruit development - Tree crops
c. Planting and fruit development - Sugarcane
d. Planting and fruit development - Cauliflower
e. Seed treatment

(B) HARVEST INFORMATION

PART V: Farming Practices - After Harvest
a. Fertilizer usage
b. Crop protection products
c. Harvest timing & quality per crop - Field crops
d. Harvest timing & quality per crop - Tree crops
e. Harvest timing & quality per crop - Sugarcane
f. Harvest timing & quality per crop - Banana
g. After harvest
PART VI - Other inputs - After Harvest
a. Input costs
b. Abiotic stress
c. Irrigation

See all questionnaires in external materials tab

Data Processing

DATA EDITING
Data processing:

Kynetec uses SPSS (Statistical Package for the Social Sciences) for data entry, cleaning, analysis, and reporting. After collection, the farm data is entered into a local database, reviewed, and quality-checked by the local Kynetec agency. In the case of missing values or inconsistencies, farmers are re-contacted. In some cases, grower data is verified with local experts (e.g. retailers) to ensure data accuracy and validity. After country-level cleaning, the farm-level data is submitted to the global Kynetec headquarters for processing. In the case of missing values or inconsistences, the local Kynetec office was re-contacted to clarify and solve issues.

B. Quality assurance
Various consistency checks and internal controls are implemented throughout the entire data collection and reporting process in order to ensure unbiased, high quality data.

• Screening: Each grower is screened and selected by Kynetec based on cluster-specific criteria to ensure a comparable group of growers within each cluster. This helps keeping variability low.

• Evaluation of the questionnaire: The questionnaire aligns with the global objective of the project and is adapted to the local context (e.g. interviewers and growers should understand what is asked). Each year the questionnaire is evaluated based on several criteria, and updated where needed.

• Briefing of interviewers: Each year, local interviewers - familiar with the local context of farming -are thoroughly briefed to fully comprehend the questionnaire to obtain unbiased, accurate answers from respondents.

• Cross-validation of the answers:

o Kynetec captures all growers' responses through a digital data-entry tool. Various logical and consistency checks are automated in this tool (e.g. total crop size in hectares cannot be larger than farm size)
o Kynetec cross validates the answers of the growers in three different ways:
1. Within the grower (check if growers respond consistently during the interview)
2. Across years (check if growers respond consistently throughout the years)
3. Within cluster (compare a grower's responses with those of others in the group)

o All the above mentioned inconsistencies are followed up by contacting the growers and asking them to verify their answers. The data is updated after verification. All updates are tracked.

• Check and discuss evolutions and patterns: Global evolutions are calculated, discussed and reviewed on a monthly basis jointly by Kynetec and Syngenta.

• Sensitivity analysis: sensitivity analysis is conducted to evaluate the global results in terms of outliers, retention rates and overall statistical robustness. The results of the sensitivity analysis are discussed jointly by Kynetec and Syngenta.

• It is recommended that users interested in using the administrative level 1 variable in the location dataset use this variable with care and crosscheck it with the postal code variable.

Data Appraisal

DATA APPRAISAL
Due to the above mentioned checks, irregularities in fertilizer usage data were discovered which had to be corrected:

For data collection wave 2014, respondents were asked to give a total estimate of the fertilizer NPK-rates that were applied in the fields. From 2015 onwards, the questionnaire was redesigned to be more precise and obtain data by individual fertilizer products. The new method of measuring fertilizer inputs leads to more accurate results, but also makes a year-on-year comparison difficult. After evaluating several solutions to this problems, 2014 fertilizer usage (NPK input) was re-estimated by calculating a weighted average of fertilizer usage in the following years.

Access policy

CONTACTS

Name	Affiliation	Email	URL
The Good Growth Plan team	Syngenta	goodgrowthplan.data@syngenta.com	Link

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CITATION REQUIREMENTS

The Good Growth Plan Progress Data - Productivity 2019. Dataset downloaded from https://microdata.fao.org.

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Metadata production

DDI DOCUMENT ID

IDN_2014-2019_GGP-P_v01_EN_M_A_OCS_v01

PRODUCERS

Name	Abbreviation	Affiliation	Role
Office of Chief Statistician	OCS	Food and Agriculture Organization	Metadata producer

DDI DOCUMENT VERSION

DDI_IDN_2014-2019_GGP-P_v01_EN_M_A_OCS_FAO

Data Dictionary

Data file	Cases	Variables
crop_protection_country_IDN	2780	32
Farm_level_data_IDN	545	32
Fertilizers_IDN	1821	17
global_farm_data_country_IDN	545	278
Q382_data_IDN	5102	9
seed_treatment_IDN	309	24
Location_IDN	676	17