



IPB University
— Bogor Indonesia —



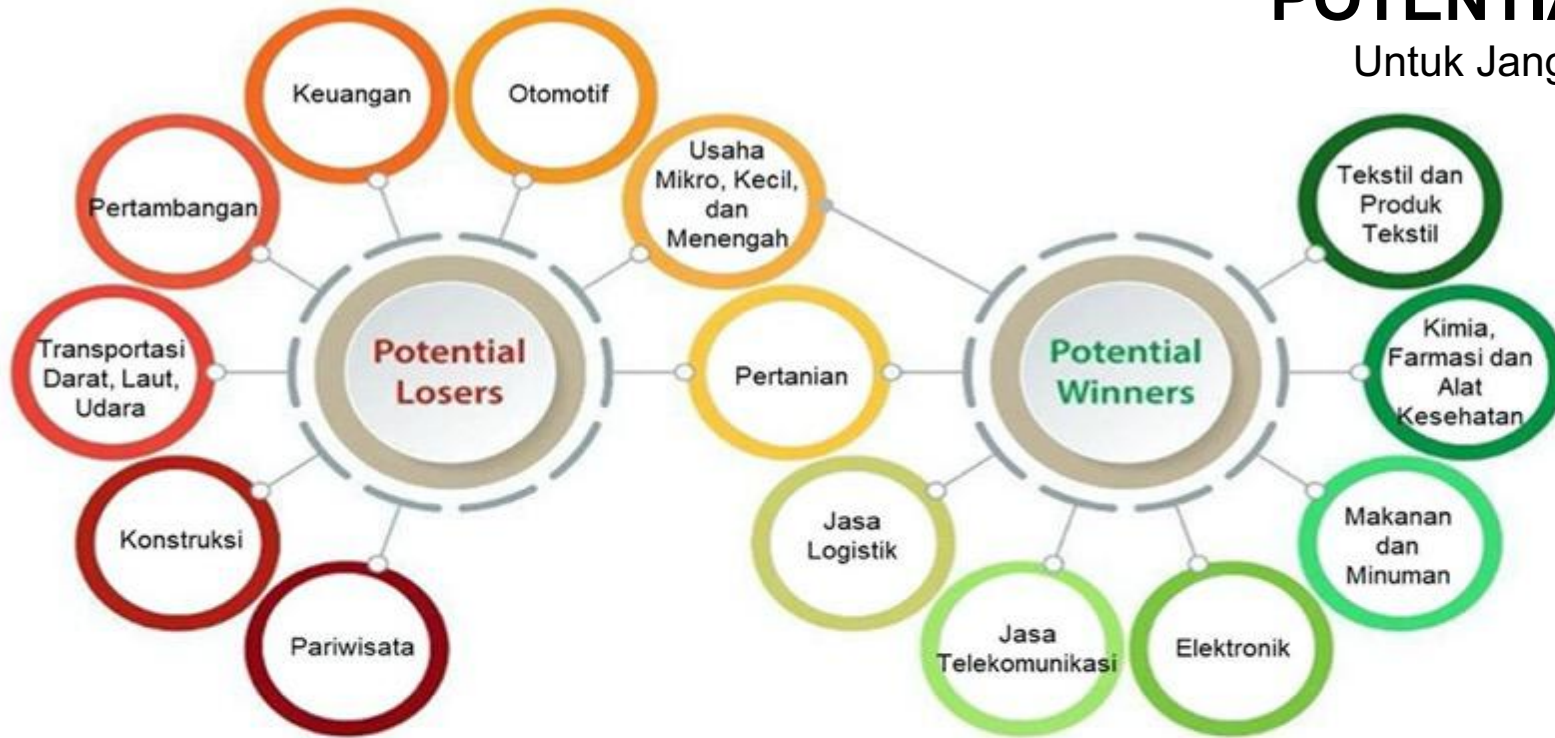
Kesiapan IPB dalam Membantu Mempertahankan **Ketersediaan Pangan** Pada Masa Pandemi Covid-19 melalui Pengembangan Agribisnis

Prof Arif Satria
Rektor IPB

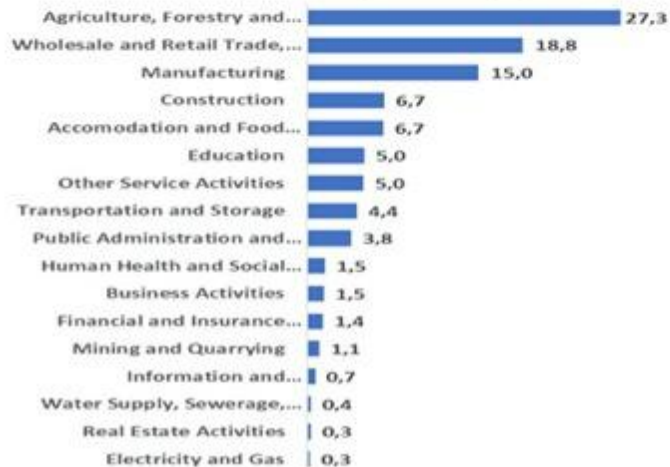
Webinar UMA, 9 Juni 2020

POTENTIAL WINNERS AND LOSERS

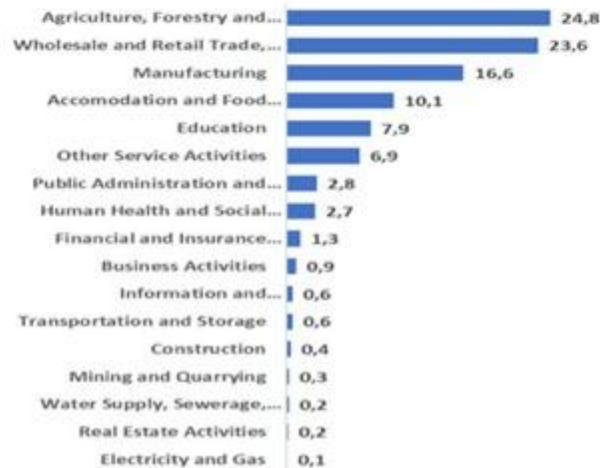
Untuk Jangka Pendek (Dampak Covid-19 Di Indonesia)



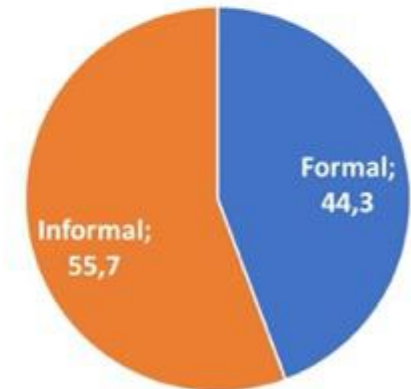
Employment by Sector (%)



Female Employment by Sector (%)



Employment by Sector 2019 (%)







Ketidakpastian baru yang berdampak ke pangan dan wacana “*de-globalisasi*”

Momentum Kemandirian Pangan



Isu Produksi dan Distribusi Pangan

-  Suplai pangan menurut Pemerintah hingga Agustus 2020 relatif aman
-  Beberapa provinsi masih defisit pangan
(Presiden Joko Widodo dalam Kompas.com, 28 April 2020)
-  Bukan masalah surplus produksi, tapi belum meratanya distribusi.
-  Suplai pangan pasca Agustus?

Momentum Kemandirian Pangan



Jangka Pendek: Perlindungan Petani

- 1 Kebijakan **logistik agromaritim** dan rantai pasok pangan dengan melibatkan BUMN Pangan, koperasi dan swasta nasional. Sistem logistik baru ini perlu inovasi berbasis teknologi 4.0, khususnya blockchain.
- 2 **Memperluas akses** petani, peternak dan nelayan pada jaring pemasaran daring
- 3 **Stimulus ekonomi** khusus untuk pertanian dan pedesaan.
- 4 Skema **perlindungan dan jaring pengaman sosial**.

Jangka Menengah: **Kemandirian Pangan**



Momentum Kemandirian Pangan



- 1 Gerakan **produksi skala rumah tangga**. Ada istilah jawa "beras jimpitan";
- 2 Produk **substitusi impor** (Misal: mie berbahan baku wortel, bayam, jagung);
- 3 **Penyempurnaan sistem data dan informasi** pertanian dan perikanan secara spasial diiringi pola pertanian presisi berbasis teknologi 4.0;
- 4 **Reforma agraria dan pengendalian konversi lahan** sebagai prasyarat kemandirian pangan dalam bentuk *land reform* dan *access reform*;
- 5 Mempercepat **regenerasi petani** melalui petani milenial;
- 6 Pengembangan **Pertanian 4.0**
- 7 Mengatasi **Food Loss** dan **Food Waste**

Scope of Agro-Maritime 4.0 IPB

Agro-Maritime System Production 4.0

IoT Agrosystem Solutions

Precision Agriculture

Smart Weather

Smart Tools

Smart Genetic Breeding

Smart Aquaculture, fishing, & Coastal Man

Smart Plantation

Smart Plant Protection

Smart Soil Detection

Optimization of Pesticides and Fertilizers

Smart Greenhouses

Smart Plant Factory

... etc

Powered by Artificial intelligent, Machine Learning, Robotics and Automation

Agrosystem Internet of Things (IoT) Platform

Data Storage (Cloud Technology), Processing, Analysis

Gateways

Environmental sensors

Weather sensors

Soil sensors

Water sensors

Plant sensors

Animal sensors

Farm



Weather



Tools



Green Energy



... Automated tools and sensors for data collection

BIG DATA





Precision Agriculture

1



Fuzzy system to
diagnose pest
and disease

3



Automation of
quality test
tool to avoid
crop damage

5



Smart system using
remote sensing
technology for land
& water use
planning

2



Bioinformatics &
genetics algorithm
to invent quality
seed

4



Identification of
soil fertility using
neural networks

6



Optimizing
shortest route
in commodity
distribution
chain

7



Transparency of the
flow of goods and
money using
blockchain & big
data



FUTURE FARMS

small and smart

SURVEY DRONES

Aerial drones survey the fields, mapping weeds, yield and soil variation. This enables precise application of inputs, mapping spread of pernicious weed blackgrass could increase wheat yields by 2-5%.

FLEET OF AGRIBOTS

A herd of specialised agribots tend to crops, weeding, fertilising and harvesting. Robots capable of microdot application of fertiliser reduce fertiliser cost by 99.9%.



FARMING DATA

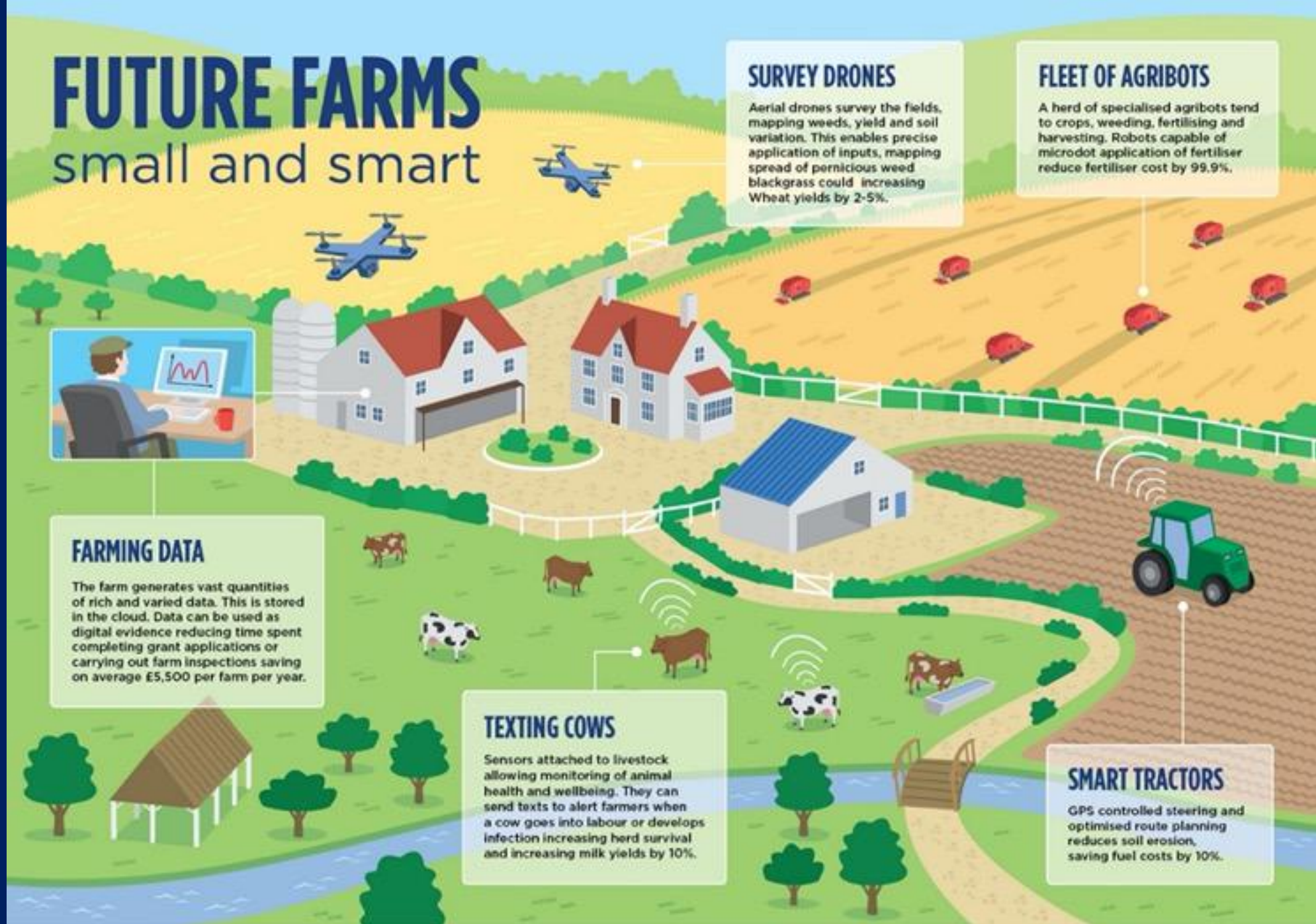
The farm generates vast quantities of rich and varied data. This is stored in the cloud. Data can be used as digital evidence reducing time spent completing grant applications or carrying out farm inspections saving on average £5,500 per farm per year.

TEXTING COWS

Sensors attached to livestock allowing monitoring of animal health and wellbeing. They can send texts to alert farmers when a cow goes into labour or develops infection increasing herd survival and increasing milk yields by 10%.

SMART TRACTORS

GPS controlled steering and optimised route planning reduces soil erosion, saving fuel costs by 10%.



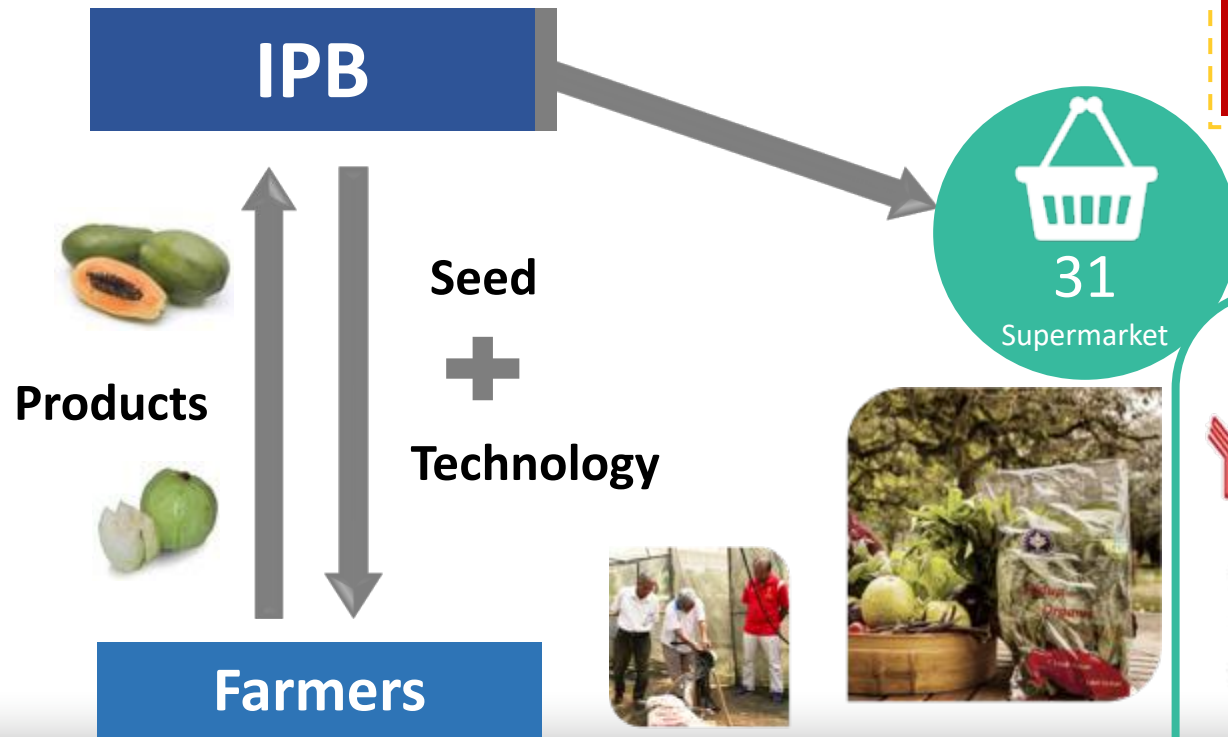
Pendeteksi Tingkat Kemanisan Buah berbasis Android



- Memanfaatkan **smartphone** berbasis cloud untuk mengukur tingkat kemanisan buah
- Melalui proses scanning buah
- Hasil dapat diperoleh **kurang dari 10 detik**

Agro-Technology Park

Connecting Farmers to Modern Super Markets



Increasing Added Value of Agricultural products



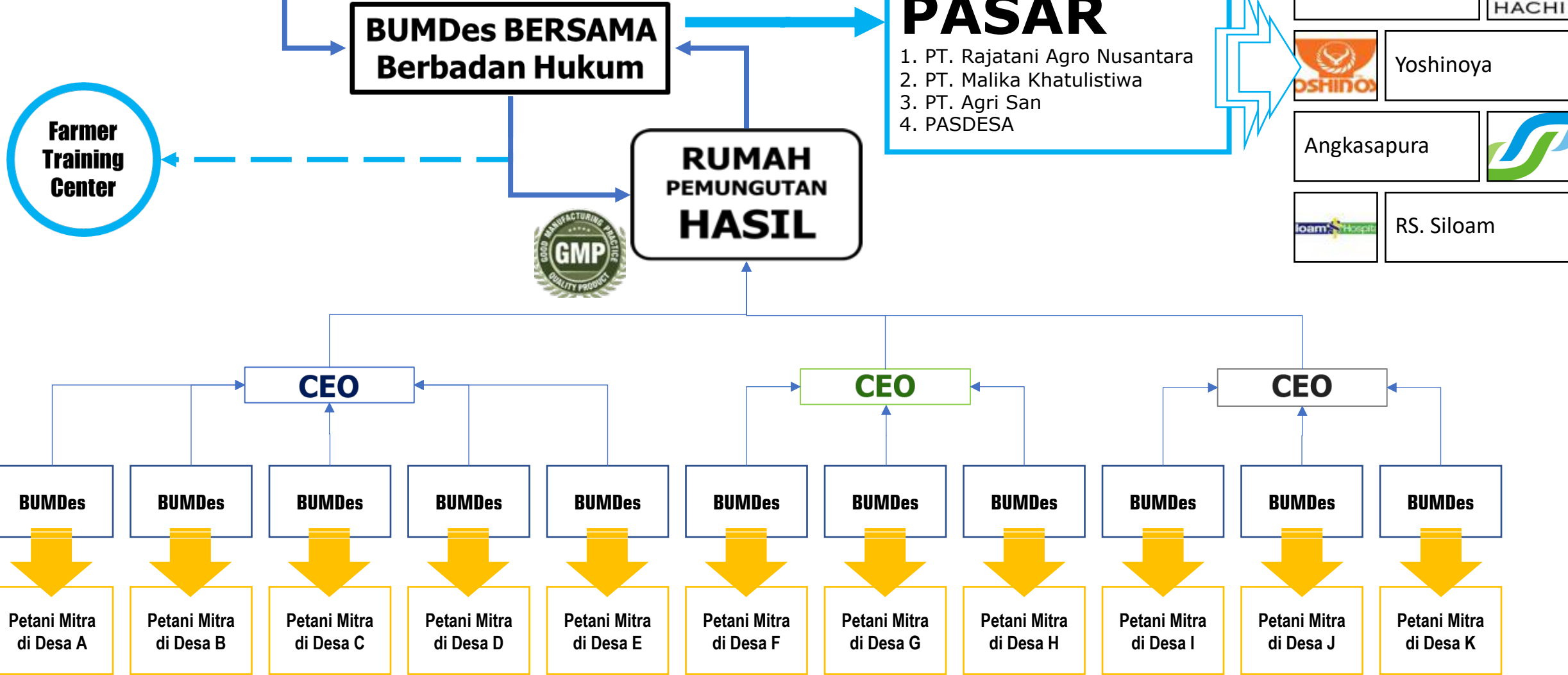
Organik
79,700 m²

Organik
43,700 m²

60 Petani



Bandung, Cianjur, Garut

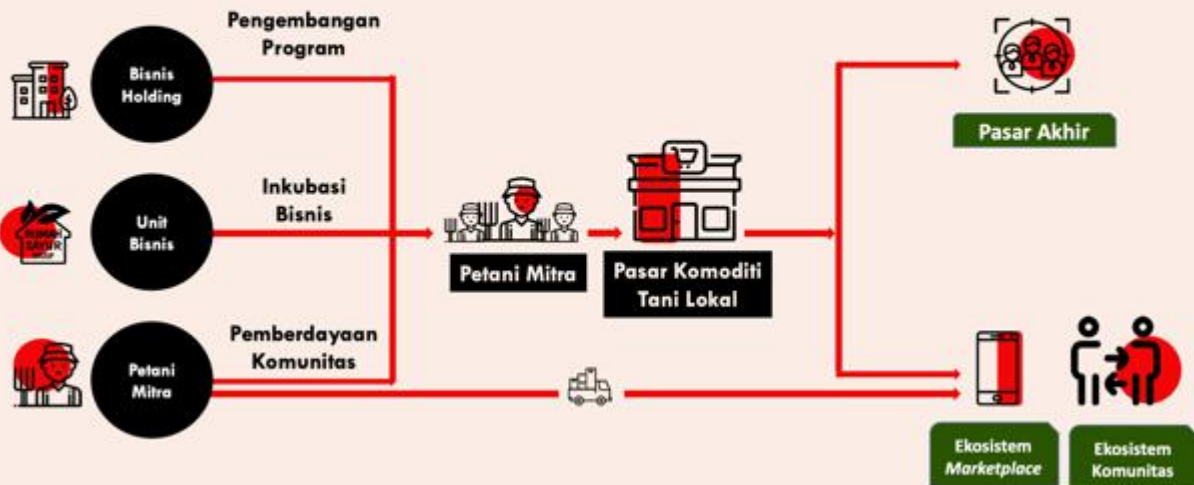


Program Young Agripreneur dan One Village One CEO





Model Bisnis Rumah Sayur Group



Kami di Shopee

Akun toko pertama kami dijalankan sejak 1 April 2020. Kini, kami memiliki 6 akun toko utama di Shopee untuk mencapai pasar yang lebih luas.

shopee.co.id/rumahsayurdepok

shopee.co.id/rumahsayurbogor

...dll



Data berikut ini diperoleh dari 1 akun toko saja dengan periode 1 bulan.

53.000.000+
Rupiah
Pendapatan

500+
Transaksi dilakukan

50k+
Produk Terjual

100+ Total SKU **80k+** Produk dilihat **900+** Followers

Kami di Tokopedia

Akun toko pertama kami dijalankan sejak 26 Maret 2020. Kini, kami memiliki 6 akun toko utama di Tokopedia untuk mencapai pasar yang lebih luas.

tokopedia.com/rumahsayur

tokopedia.com/rumahsayur-2

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Data berikut ini diperoleh dari 1 akun toko saja dengan periode 1 bulan.

108.000.000+
Rupiah
Pendapatan

800+
Transaksi dilakukan

15k+
Produk terjual

100+ Total SKU **55k+** Produk dilihat **900+** Followers

TANI CENTER



JANGKAUAN TANI CENTER

- 152 mahasiswa IPB
20 mahasiswa non IPB
- 23 Tenaga pendidik (dosen)
73 Petani
38 Pelaku industri tumah tangga
- 11 media publik/pers
5 wakil pemerintah



IPB Digitani
IPB Mobile for Farmers

IPB Innovation for Community

SEKOLAH PETERNAKAN RAKYAT (SPR)



>1000 cows
Per SPR



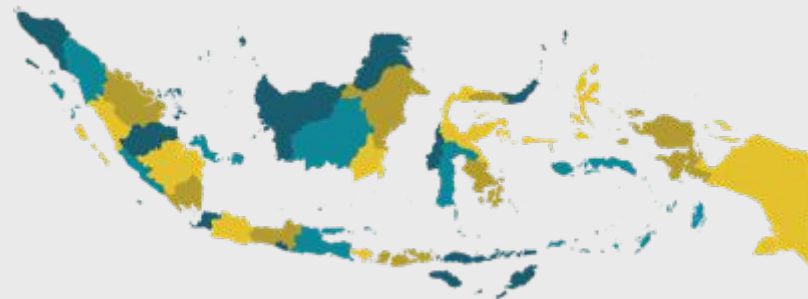
10
Strategies



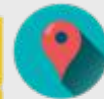
>100 bulls
Per SPR



1 vision



7.292 Farmers/breeder



29 Location
6 Provinces



Village Drone School



Spatial Mapping of Drones Technology



Village Planning



Land Ecology



Village Potential and Assets



Disaster Identification

Partners



Terima kasih



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