The Application and Plan of RS in Agricultural Statistics of China at the age of Big Data

National Bureau of Statistics of China.

2019.10

1. The situation when we face BIG-DATA

1.1 BIG DATA VS DATA

(1) The Main character

Vloume,Variety,Value,Velocity,Veracity

(2) Traditional DATA

Stable, Quantity, Low frequency

(3) The Relation

Process and Result, Recocrd and Quantity

Both are one part of measurement、obsrvation

1. The situation when we face BIG-DATA

1.2 How To Use BigData in statistics

(1) Understanding the law of informationlization ERA

Pre-informationlizaiton, Digitalization, networking, intelligence ERA

(2) Build the new work base For digitalization era

Digitalization rebuiding of The indicator\process\method for statistics, surpported by cloudy caculation, all time networking

(3)Innovation of processing and methodology

Such as include The Pictures data into statistics data resource, Whole process monitoring replaced the Res ult process, High frequency statistics replaced the low frequency job.

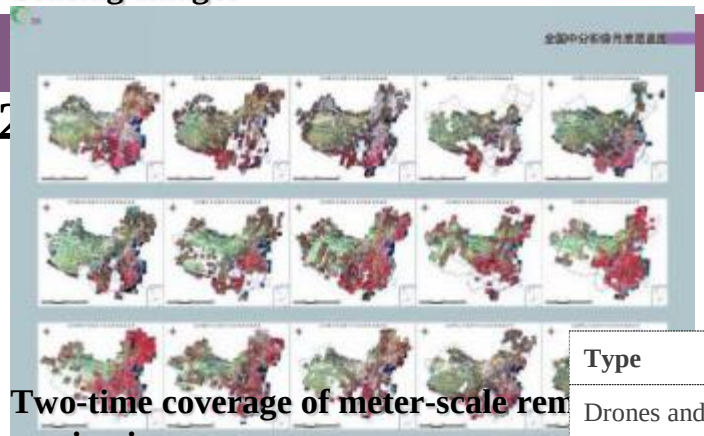
2. Major Application Cases

2.1 History of Applicaiton of NBS

Through many years of researching and pilot projects, it was officially launched into the application stage in 2010, and has been applied in some Provinces, and promoted to the whole Country.

2.2

National Monthly Coverage of Partial Remote Sensing Images

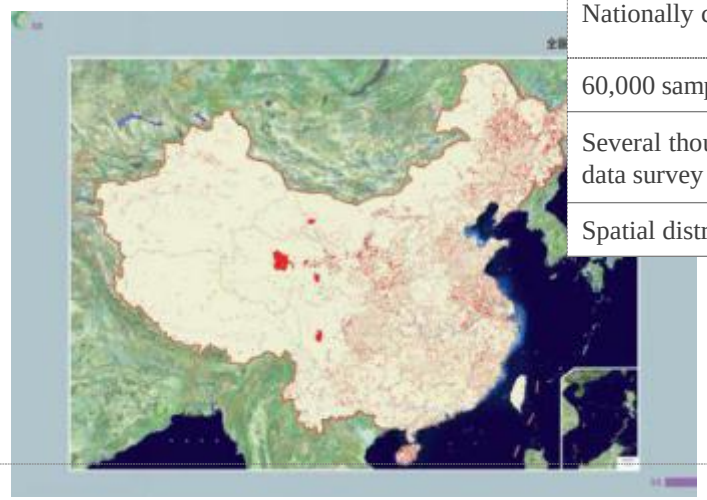


Two-time coverage of meter-scale ren
sensing images
Ami-scale remote sensing images with
coverage in the selected census area

Type	Magnitude
Drones and pilots	Over 1000
RS images	National high frequency coverage
Nationally covered blocks	Plot patches of ten million levels
60,000 sampling squares	Plot patches of million levels
Several thousands of PDA based on remote sensing land block data survey software	
Spatial distribution data of covered crop planting nationwide	

s with AOPO licenses
tionwide.

Equipped with more than 1000 Drones nationwide

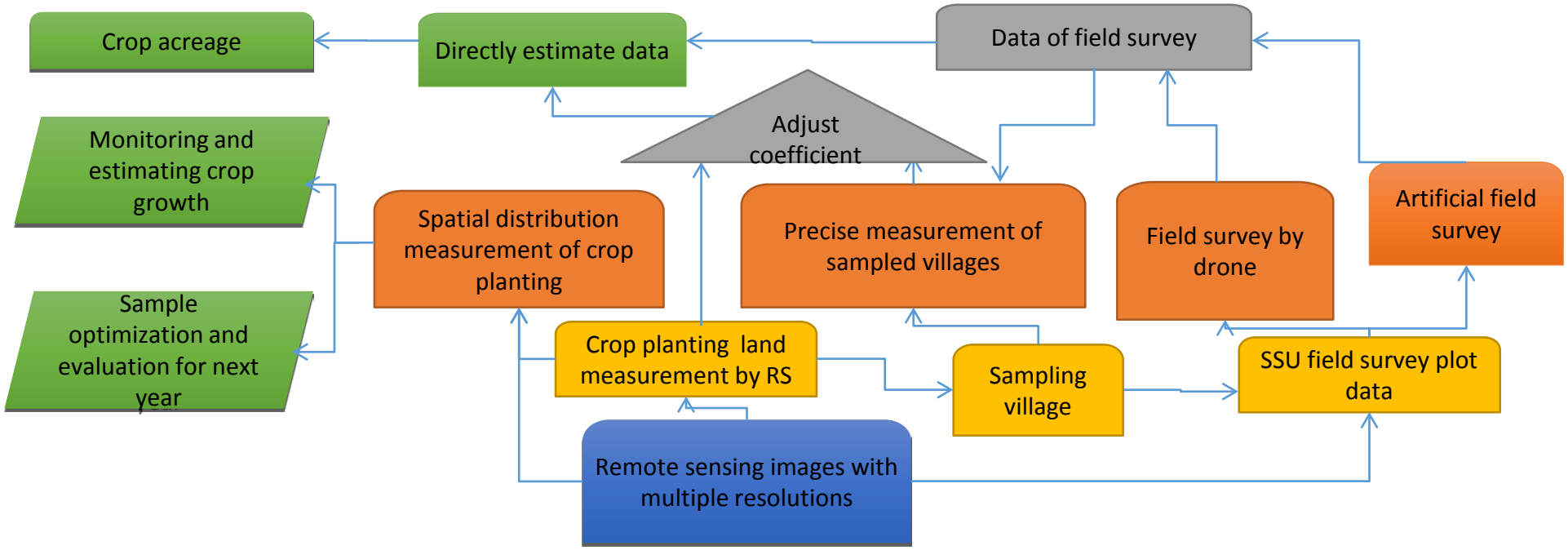


More than 20,000 sampling villages
/60,000 sampling squares
/5 million land plots

2. Major Application Cases

2.3 Established a scientific acreage estimation method

Measurement system has been established by combining the fully spatial coverage survey with the sampling method. In addition, remote sensing technology has been used in three important links: Basis data measurement, process and result in order to obtain the spatial distribution of main crops with permitted precision, and to support growth monitoring and sample optimization.



2. Major Application Cases

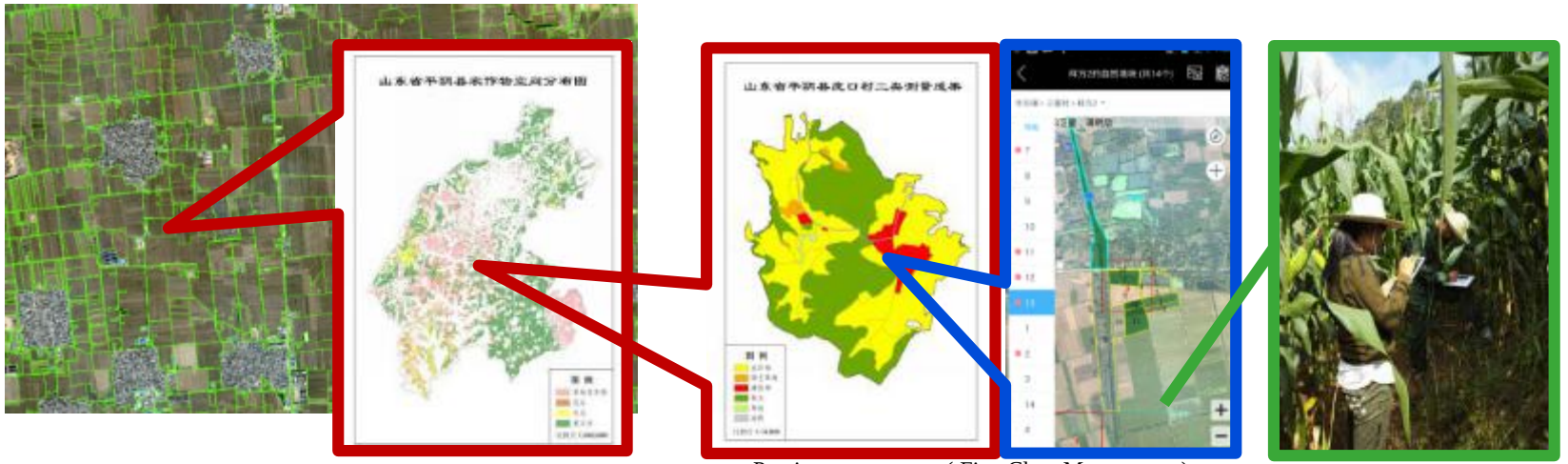
2.4 Strengthen basic data support in statistical survey

Based on high-resolution, sub-meter RS image data, founded basic frame land data of the agricultural area of the whole country, then started sampling, field survey task data producing, crops spatial distribution measurement ect..

(1) Improve the objectivity of basic data: Objective is basic feature of RS data.

(2) Obtain accurate data of locations and areas: Automatic positioning and high accuracy of acreage measurement.

(3) Improve the efficiency and accuracy by automatic measuring: Reduce manual operations.



Spatial distribution measurement

Precise measurement(First Class Measurenent)

Field investigation

2. Major Application Cases

2.5 Quick and accurate field survey

(1) Two survey method

① Artificial field survey based on land data:On-site survey bas
ed on RS image and land parcel task package data.

②Rapid field survey by Drone:Semi-automatic and accurate fi
eld survey by drone.

(2) Adaption of field survey

① Expand the measuring range:Obtain basic information witho
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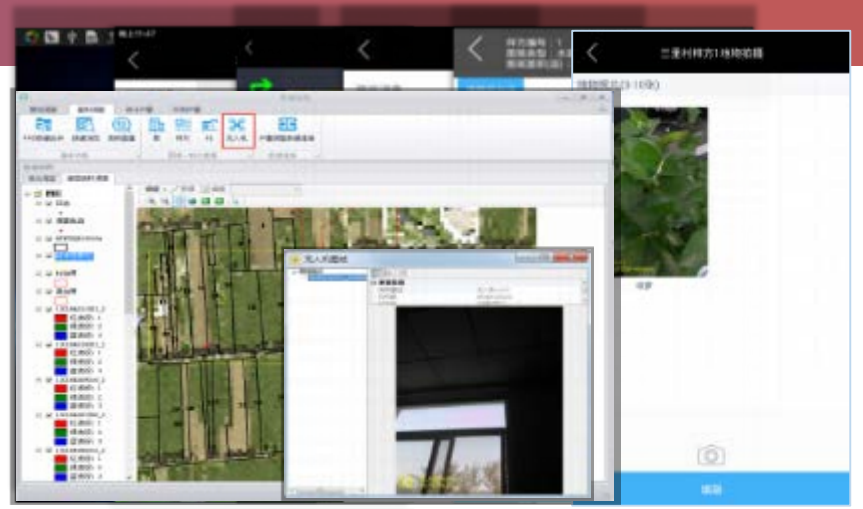
surveyo
② Samp
hout loc



survey with pda: 3 people 2 hour per village

Survey by drone: 1 person 30 minutes per village.

2. Major Application Cases

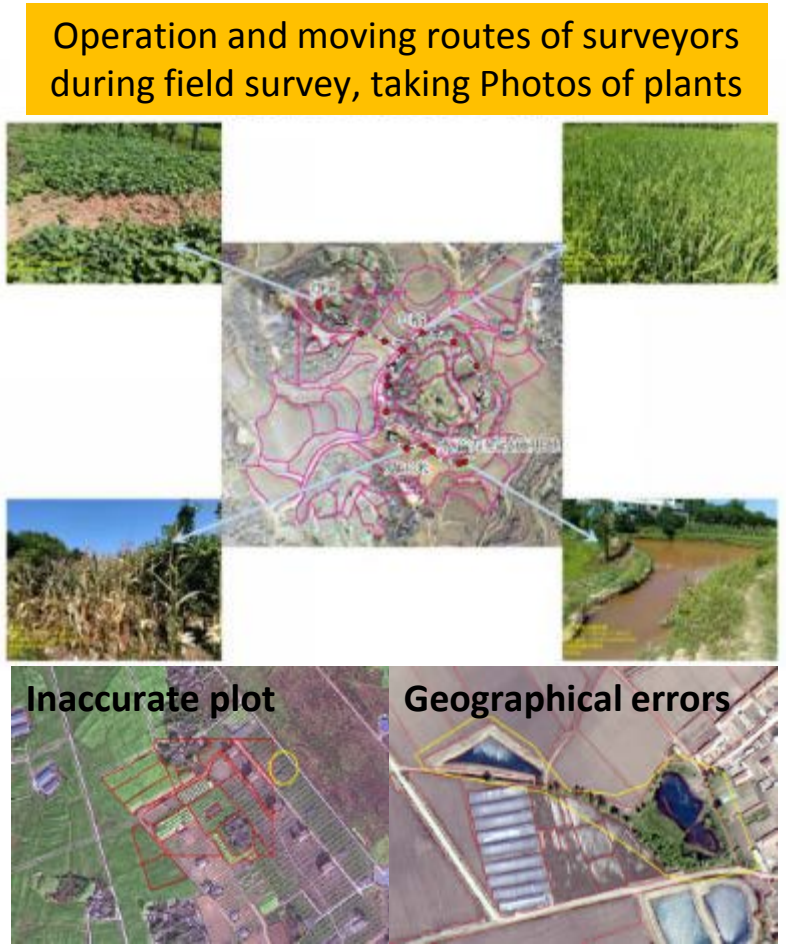
2.6 Improve data quality monitoring ability

(1) Monitoring survey processing

Operation and moving routes of surveyors during field survey are automatically re corded, photos of plants and other things inside samples land are taken.

(2) Improving the quality of Post Enumeration Survey

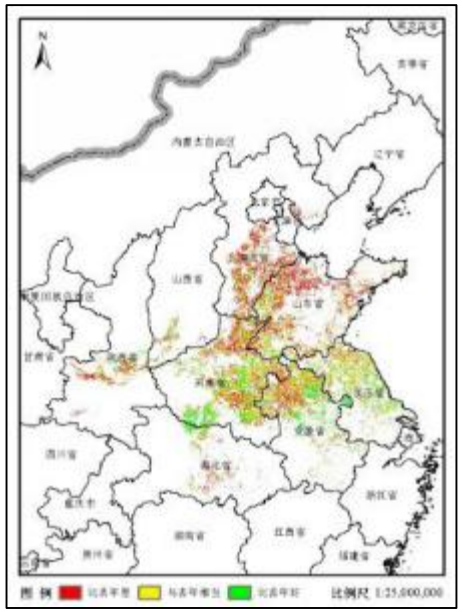
Errors checking in samples data indoors,such as boundary and plant type.

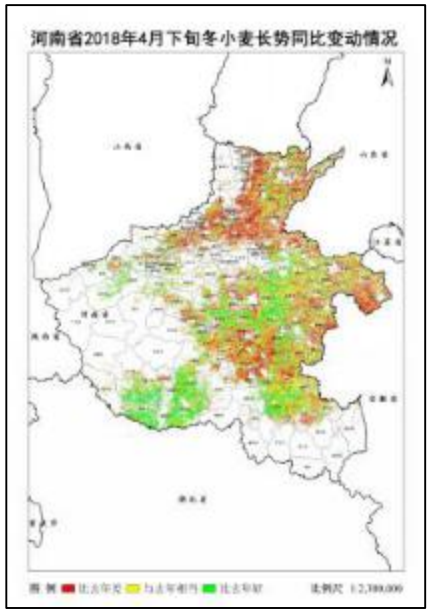


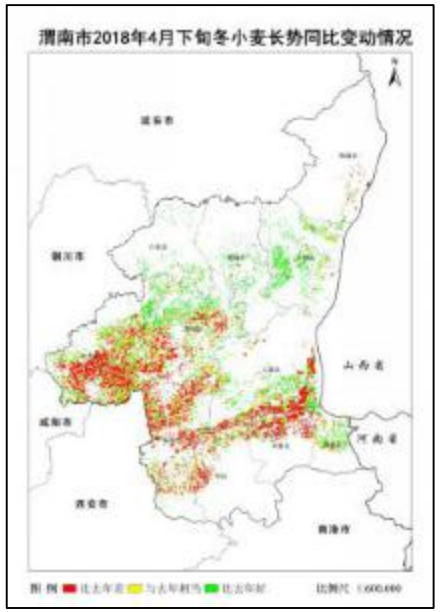
2. Major Application Cases

2.7 Monitoring growth and yield production timely

Analysis from spatial perspective, focusing on data and issues overall.Spatial analysis with the spatial distribution data and more scientific assessment. During critical period of growth, key areas and disaster-affected areas, growth monitoring and yield assessment are carried out.







3. Planning and Direction

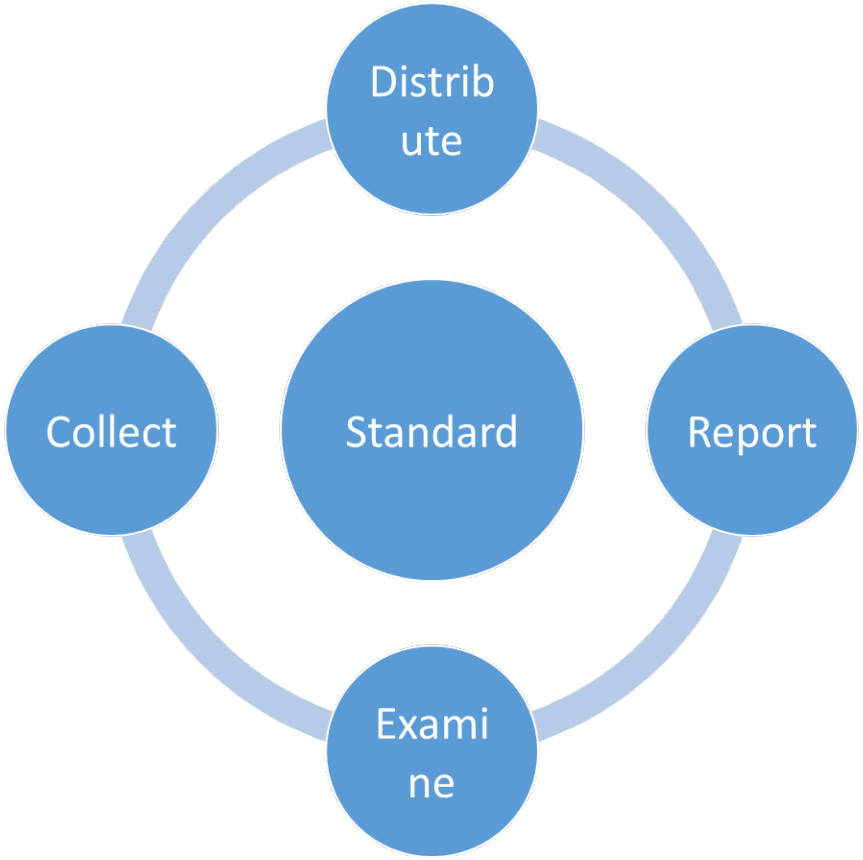
3.1 Further integrate the whole investigation process

(1) Establish a standardized and unified data processing flow

Unify data standards to avoid data inconsistent.

(2) Establish the data releasing, collection, verifying and reporting process

Improve the support ability of field survey.



3. Planning and direction

3.2 Automation

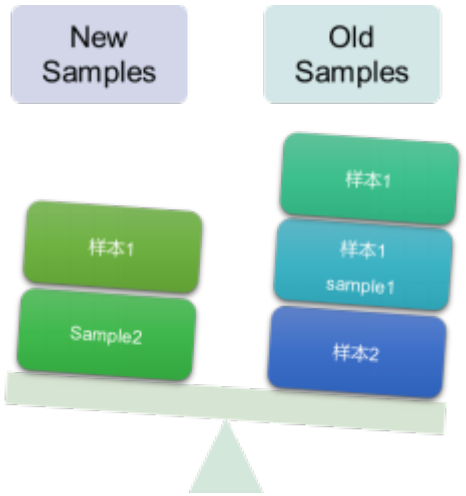
Cloudification
- Unified data task release.
- Unified clound support for tools.

Networking
- On-line data processing of field survey.
- On-line data rpocessing of survey by Drone.

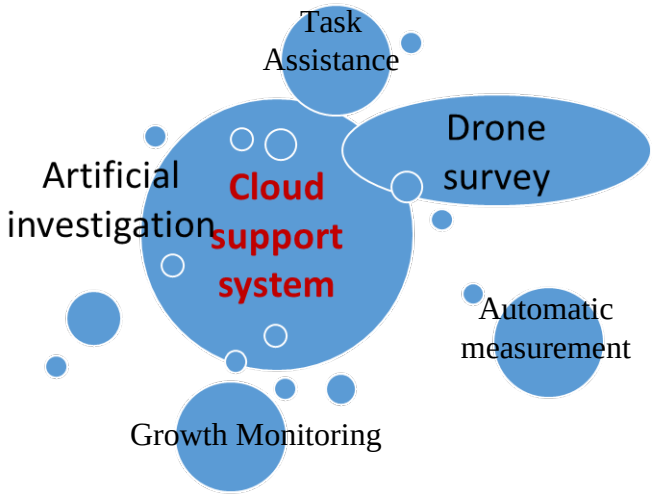
AI
- Acreage measuring automatically
- Crop classification automatically
- Yield monitoring and forecasting automatically

3. Planning and Direction

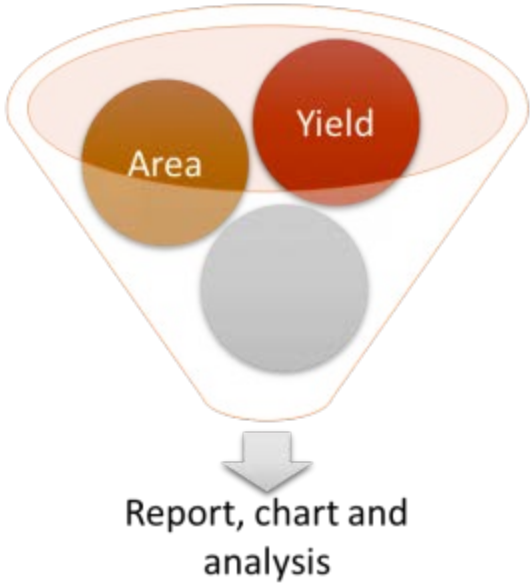
3.3 Amend the support service ability



(1) Optimize sample use efficiency



(2) Analysis software support system through unified survey

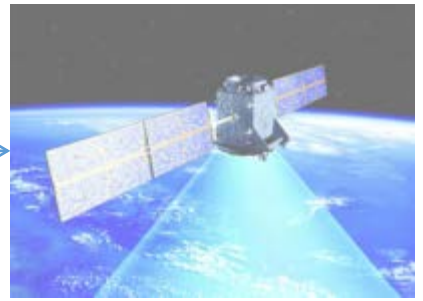


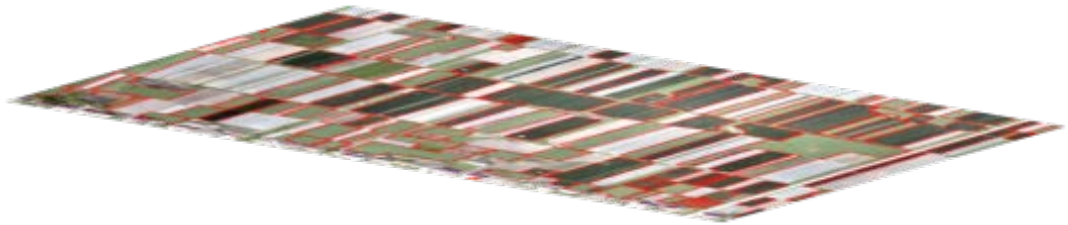
(3) Quickly Publish data Service

3. Planning and direction

3.4 Integrated crop survey system of space,sky and field

APP





Thanks!

谢谢！

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