RiCoFarm: a survey to control the farm register and support its implementation

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Structural surveys on business and institutions

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Summary

- Context

- FR implementation in Istat since 2008

- Objectives

- Network organisation and Data collection mode

- Sample

- Content

- Survey results and impacts on FR implementation

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Context

- Need to recourse to administrative data sources

    (FAO 2020 Programme – World agricultural census;

    EU Regulation for the 7° Agricultural census 2020)

- Increase efficiency, timeliness and frequency of data

    release, minimize the response burden and costs

- National statistical programme (answer mandatory,

    administrative sanction for all units included in the sample list)

- *Business register (Reg 1177/2008)*

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FR implementation in Istat since 2008

✓ 2008 Integrated Base of Administrative Sources (BIFA)

✓ 2008 - 2009 Survey to check coverage and quality of the first

  draft of farm register (CLAG)

> => main aim was to assess elegibility rules used to identify
>
> units to be included in the register

2010 release of the pre-census list for the realization of the

6° agricultural census (that substituded the pre-census

survey done in order to get from the municipalities the

holdings list to be surveyed through census)

Farm register implementation in Istat since 2008

………follow

- 2011 Post census enumeration

2014/15 FR 2013 implementation

2016 Survey to support Farm register implementation

2017/18 FR 2014 implementation

…..in the meantime
- Extraction of samples for agricultural survey

….in the next future

- Direct release of data

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Objectives

- To estimate parameters for the farm register model implementation from administratives archives

- To verify relationship relationship among units included in the register in order to reduce double counting (over coverage)

- To assess structural variables included in the register (land use, livestock)

- To estimate a labour force component (self-employed workers) on farms per single unit

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Estimates parameters for units inclusion in the register - Sources

Integrated Administration and Control System (AGEA) land and holder

Integrated Administration and Control System (AGEA) only holder

System for the Identification and Registration of livestock
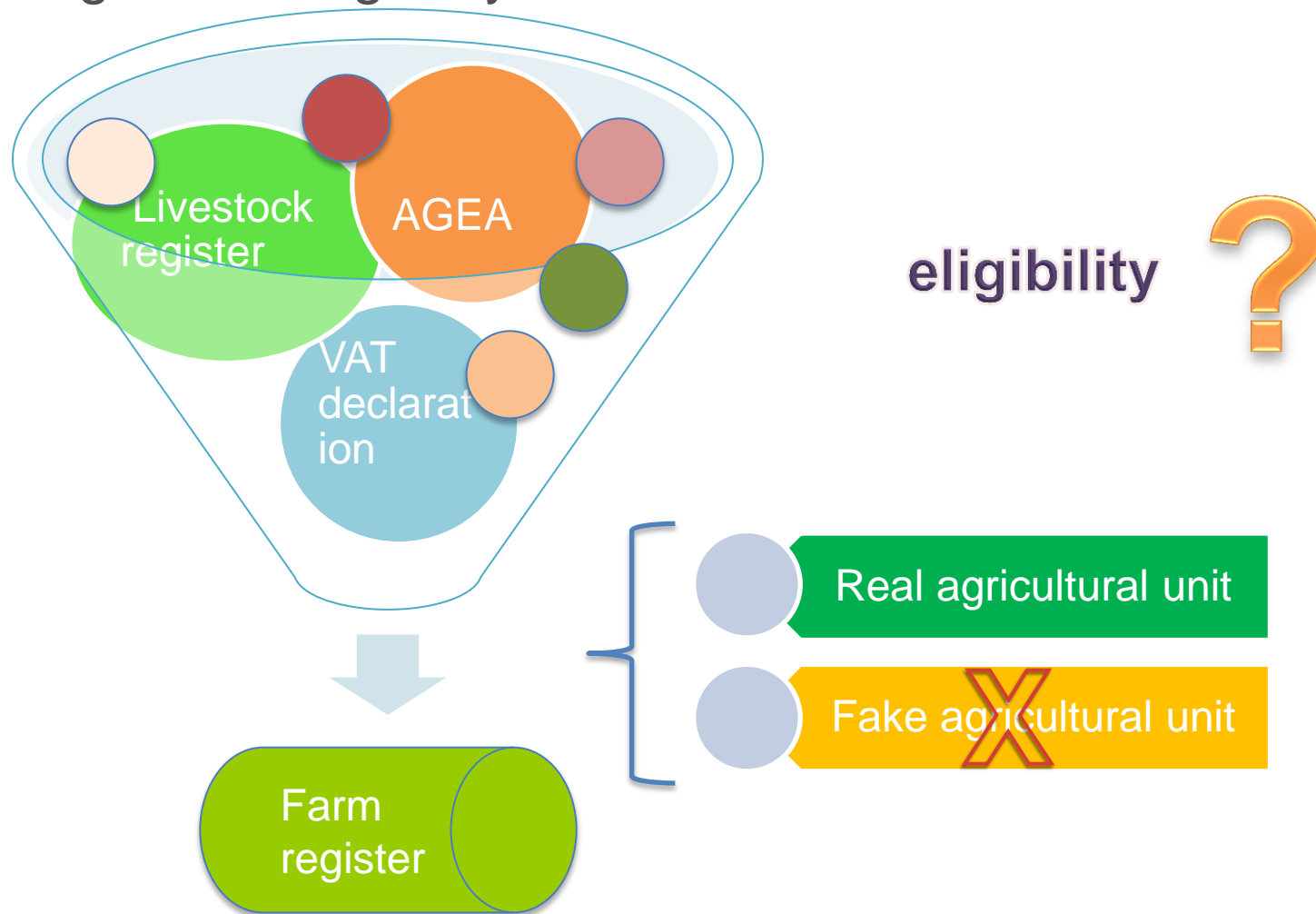
VAT declaration for agricultural activity

Agricultural income associated to land register
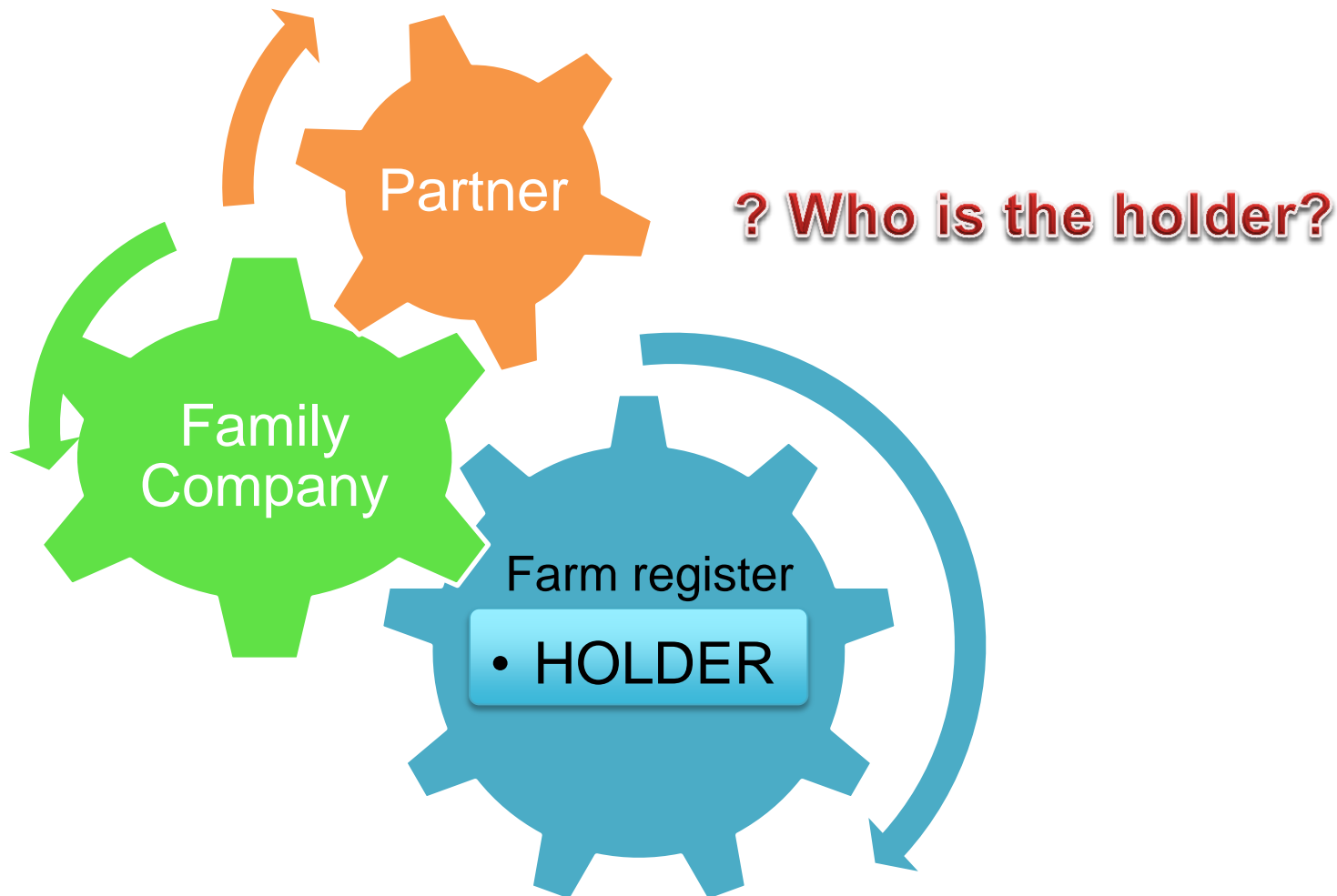
Agricultural census 2010

List of Agritourism farms

List of farms under quality production scheme

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Estimates parameters for units inclusion in the register - Eligibility

Livestock register

AGEA

VAT declaration

eligibility ?

Real agricultural unit

Fake agricultural unit

Farm register

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Verify relationship among units (clusters)

Partner

Family Company

Farm register
- HOLDER

? Who is the holder?

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Assess structural information on the unit

Land use

❖ Arable land
  of which …..rice
❖ Kitchen gardens
❖ Permanent crops
  of which …..vineyards
  ……………olive
  …………..citrus
  ………….pear
  ………….peach
  ………….nursery
❖ Pasture and meadows
✓ **UAA**
❖ Permanent crops for Wood production
❖ Forest
❖ Other land
✓ **Total farm land**

Livestock

❖ Bovines

❖ Buffaloes

❖ Sheeps

❖ Goats

❖ Pigs

❖ Other livestock

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Estimate self-employed labour force per single unit

Persons employed

Employees | **Self-employed** ?

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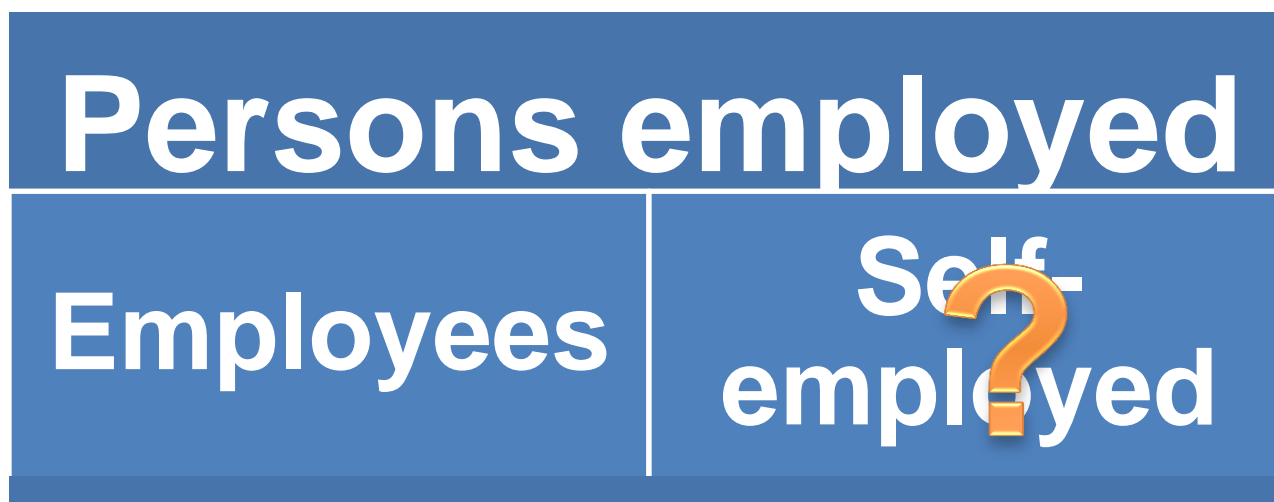
Survey characteristics

❑ National Statistical Plan 2014-2016 (code IST-02574) and

   it was compulsory for the respondent

❑ Run between april, 19th and july, 29th 2016.

❑ Data validation ended in september,15th 2016

❑ Reference year:

   ❑ 31° october 2015 for land extension
   ❑ agrarian year 2014-2015 for land use and labour force
   ❑ year 2015 for livestock (heads, annual average)

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Network organisation and Data collection mode

The survey is organised as on field as

✓ personal CAWI (Computer Assisted Web Interview) or PAPI (Paper and Pen Interview) whether internet line connection would be not available

  at the *holder residence address*

Or as

✓ CATI (Computer Assisted Web Interview) only in rare cases, whether accessibility of holder residence would result very difficult

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Network organisation and Data collection mode

Regions are responsible for the survey at local level (Statistical offices and agricultural departments)

- Providing Interviewers (internal or hired personnel)

- Making interviews

- Making data entry, where necessary

- Doing check and validation of the questionnaires

- Monitoring the survey during data collection

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Network organisation and Data collection mode

In order to manage such organizational and data collection models Istat implemented a web-based integrated system which comprises:

➢ an online questionnaire with data editing functions;

➢ a management and monitoring module.

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Network organisation and Data collection mode

- Data entry of the questionnaire on-line (Data Entry)

- Check of the questionnaire divided into a data entry phase and a back office phase

- Back office check and validation run by the person in charge at territorial level

- Summary reports for monitoring purposes

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Network organisation and Data collection mode

- **Data entry check** is mainly oriented to assess
  - ➢ Data validity according to kind of recorded information
  - ➢ Internal coherence of the recorded information

- **Back office check** is mainly oriented to assess

Coherence of the recorded information with the ones derived

from the administrative sources both qualitative and

quantitative

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Functions/profiles of the management and monitoring system

- Data collection network (Person in charge of the survey at local level, interviewers with connections between sample units / interviewer and person in charge; monitoring system)

- Administrators and Supervisors at Central and regional level

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Survey Unit & Sampling frame

Survey Unit

- the Unique identification code for agricoltural unit (CUAA) or the fiscal code (CF) of the unit included in the list
  → Agricultural unit

Sampling frame

- Units carrying out agricultural activity as defined by NACE with
  - ✓ Land (even if only kitchen gardens)
  - ✓ Livestock (including heads for self-consumption)
  - ✓ Unit exclusively forest

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# Agricultural unit definition

Recall the statistical definition of
"Agricultural holding" that is:
a single unit, both technically and economically, constituted by

- *land, even not contiguous, and*
- *by machineries*
- *managed by a holder i.e. natural or juridical person or institution*
- *that undertakes agricultural, forest and livestock activities – as primary or secondary -, alone or in a partnership* as defined by NACE

| Agricultural unit |
| Agricultural unit |
| Agricultural unit |
| Agricultural unit |

| Agricultural holding |
| Agricultural holding |
| Agricultural holding |
| Agricultural holding |
| Agricultural holding |
| Agricultural holding |

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Sample extraction: Eligibility (according to sampling experts) criteria
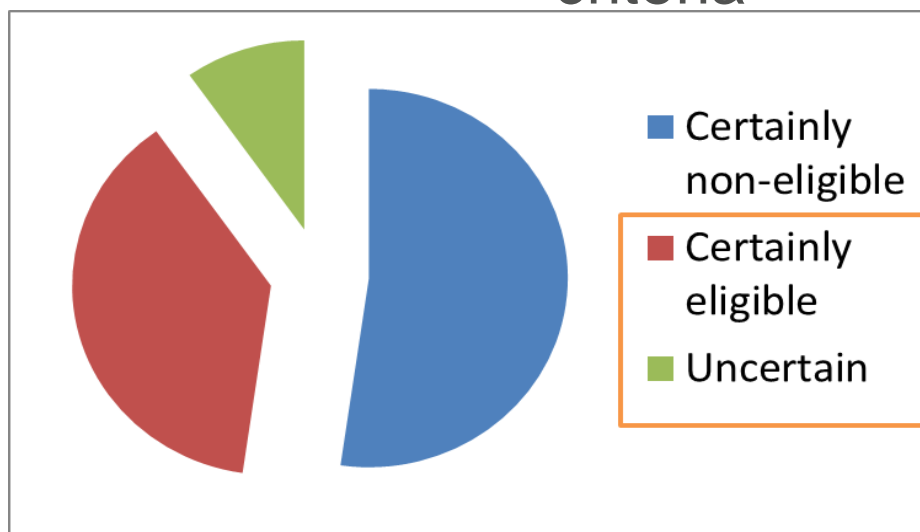
FR 2013 distribution according to eligibility defined by sampling experts (4,592,757 units)

- Certainly non-eligible
- Certainly eligible
- Uncertain

Sample extraction list

«certainly non-eligible»
- Units in IACS but only with information on manager or with land not in common with another holder less than 1 hectar or with at least 50 % of UAA in common with another holder
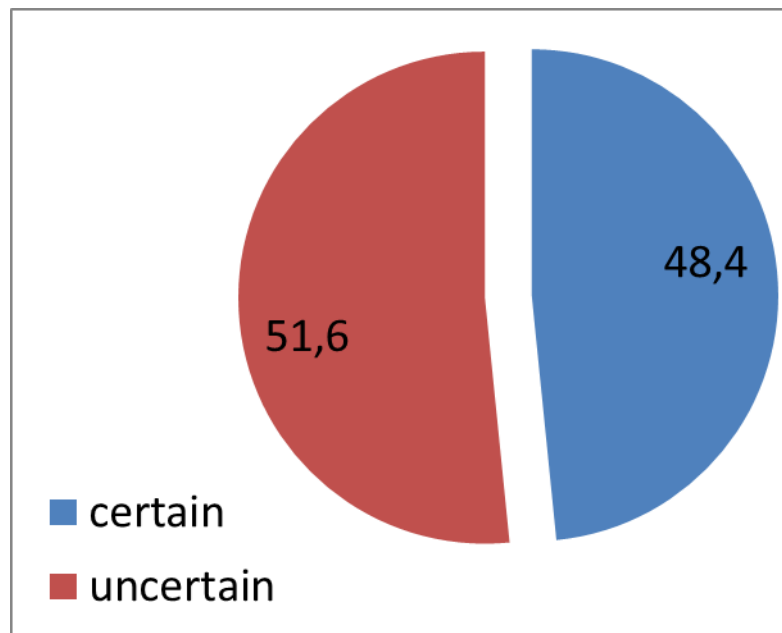
«**certainly eligible»**
- Units in IACS or in cadastre register with flower cultivation

«uncertain elegibility»
- Remaing units

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Sample distribution by Eligibility (according to sampling experts) criteria

Of which   31 % without any contact information (telephone, ordinary or certified email)

Sample extraction criteria

Stratification variabiles

- Administrative regions (according to the location of the unit headquarter)
- UAA (< > 2 ha)
- LSU (< > 2 LSU)
- Combination of Admin sources
- Special cases (+195 units)

Final number depending on
- Stratification variables
- Variability of estimated variable
- **Budget constraint**
- **Survey network requirement**

21.565 units
675 municipalities

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Sample distribution by region according to RES (residence) location

REGIONS	Sample	Interviewers
01 PIEMONTE	1.189	6
02 VALLE D'AOSTA/VALLÉE D'AOSTE	597	3
03 LOMBARDIA	1.252	6
05 VENETO	1.338	7
06 FRIULI-VENEZIA GIULIA	719	4
07 LIGURIA	868	4
08 EMILIA-ROMAGNA	1.222	6
09 TOSCANA	1.400	7
10 UMBRIA	727	4
11 MARCHE	772	4
12 LAZIO	1.291	6
13 ABRUZZO	799	4
14 MOLISE	550	3
15 CAMPANIA	1.050	5
16 PUGLIA	1.986	10
17 BASILICATA	613	3
18 CALABRIA	1.109	6
19 SICILIA	1.881	9
20 SARDEGNA	932	5
21 BOLZANO/BOZEN	567	3
22 TRENTO	703	4
Total	**21.565**	**108**

Around 600.000 euro

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Questionnaire content

The questionnaire includes a preliminary section and 3 thematic sections

i) **INFORMATION ON THE HOLDER, ii) INTERVIEW'S RESULT,**
iii) AREA MODIFICATION,
iv) LINKS WITH OTHER UNITS, v) HOLDER HEADQUARTER LOCATION
vi) STATUS OF ACTIVITY

SECTION I – INFORMATION PER UNIT WITH LAND

SECTION II – INFORMATION PER UNIT WITH LIVESTOCK

SECTION III – INFORMATION ON LABOUR FORCE IN THE UNIT

NOTES

STATISTICAL CONFIDENTIALITY, PROTECTION OF CONFIDENTIALITY
and RIGHTS OF INTERESTED PARTIES

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Answers to be given

Is the unit in list an agricultural unit?
Is it changed over time?
Is it linked to other units in the list?
Is it active ?

Is the information derived from administrative sources of good quality?

Can we estimate a labour force component through this survey?

A) INFORMATION ON THE HOLDER, B) INTERVIEW'S RESULT, C) AREA MODIFICATION, D) LINKS WITH OTHER UNITS, E) HOLDER HEADQUARTER LOCATION, F) STATUS

A. INFORMATION ON THE HOLDER

- CCUAA agricultural unit (pre-printed, not changeable)

- Name, postal adress, certified e-mail, ordinary e-mail, telephone (pre-printed, changeable)

B. INTERVIEW'S OUTCOME

B1. Surveyed unit ⟹ **Continue interview**

B2. Not surveyed unit

B3. Not existing unit

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A) INFORMATION ON THE HOLDER, B) INTERVIEW'S RESULT, C) AREA MODIFICATION, D) LINKS WITH OTHER UNITS, E) HOLDER HEADQUARTER LOCATION, F) STATUS

B2. Not surveyed unit
a. Holder not found
b. Refusal
c. Other reasons (specify…….)

➡️ **Stop interview**

B3. Not existing unit
a. Never been an agricultural unit
b. Agricultural land or livestock definitively abandoned without transfer to others [DATE]
c. Agricultural unit completely rented, gave in, to others in a new or an already existing holding [DATE]
d. Unit linked to an existing holding with a different holder (family member or other)

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INFORMATION TO BE REQUIRED FOR UNITS
B1. Surveyed unit

C.1. AREA MODIFICATION AND LINKS BETWEEN UNITS
In the reference agricultural year 2014 - 2015 – and with respect to
the previous agricultural year – the unit has been subjected to
modification of the UAA ?
i.   None
ii.   Purchase or rent from other units
iii.   Transfer or rent to others
iv.   Land use different from agricultural use

**C.2. IS THE UNIT INDICATED IN THE «A» BOX OFFICIALLY
REPRESENTED FOR ADMINISTRATIVE PURPOSE BY ONE OR MORE
FISCAL CODES?**

If   YES

D. UNITS LINKED TO THE ONE IN LIST
▪ CCUA o CF (fiscal code), name municipality of residence

INFORMATION TO BE REQUIRED FOR UNITS

B3. Not existing unit

    c.   Agricultural unit completely rented, gave in, to others in a new or an already existing holding [DATE]

    d.   Unit linked to an existing holding with a different holder (family member or other)

D. UNITS LINKED TO THE ONE IN LIST

- CCUA o CF (fiscal code), name municipality of residence

Stop interview

E. UNIT HEADQUARTER LOCATION

- Municipality (pre-printed, changeable)

F. UNIT STATUS

a. Active

Continue interview

b. Temporarily not active

Stop interview

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LAND USE

- ❖ Arable land
    - *of which …..rice*
- ❖ Kitchen gardens
- ❖ Permanent crops
    - *of which …..vineyards*
    - *……………olive*
    - *…………..citrus*
    - *………….pear*
    - *………….peach*
    - *………….nursery*
- ❖ Pasture and meadows
- ✓ **UAA**
- ❖ Permanent crops for Wood production
- ❖ Forest
- ❖ Other land
- ✓ **Total farm land**

**Area (ha)
Agricultural year
2014 – 2015**

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LIVESTOCK

❖ Bovines
  of which for self-consumption

❖ Buffaloes
  of which for self-consumption

❖ Sheeps
  of which for self-consumption

❖ Goats
  of which for self-consumption

❖ Pigs
  of which for self-consumption

❖ Other livestock   *Y/N*
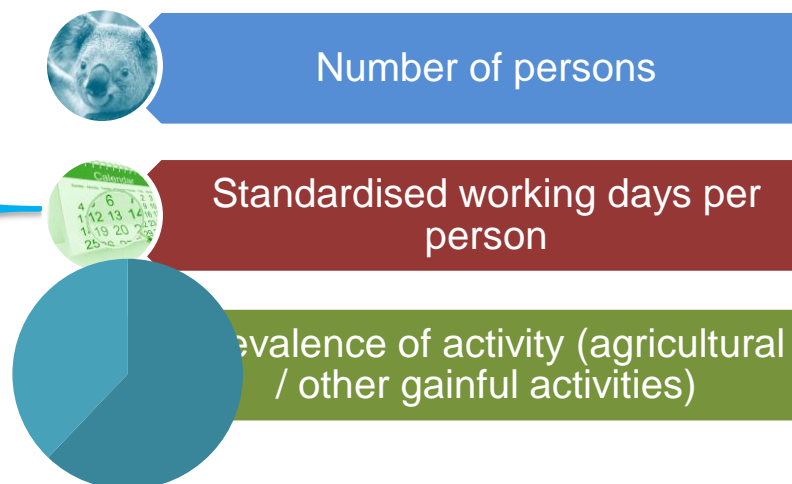
**Livestock heads
2015 average**

SECTION III.
INFORMATION ON LABOUR FORCE IN THE UNIT

SELF-EMPLOYEES

What categories?

What information?

- ❖ Holder

- ❖ Holder spouse

- ❖ Other family relationship

- ❖ Partner in company

Number of persons

Standardised working days per person

Prevalence of activity (agricultural / other gainful activities)

Reference period?

Agrarian year 2014-2015

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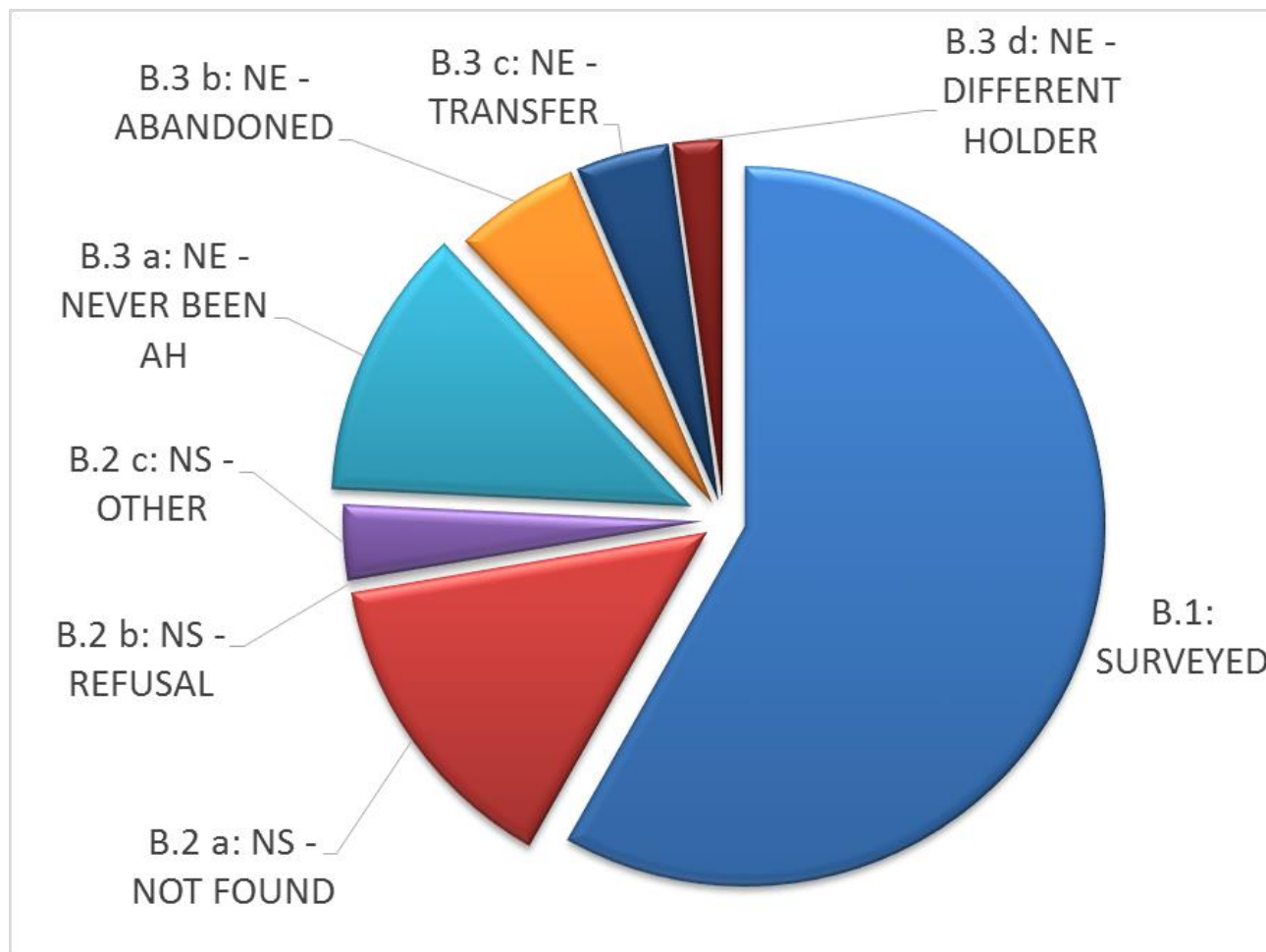
Traditionnaly information at farm level is collected on

❖ Family labour, often seasonal and part-time as labour force is mainly based on it

❖ Other kind of labour force

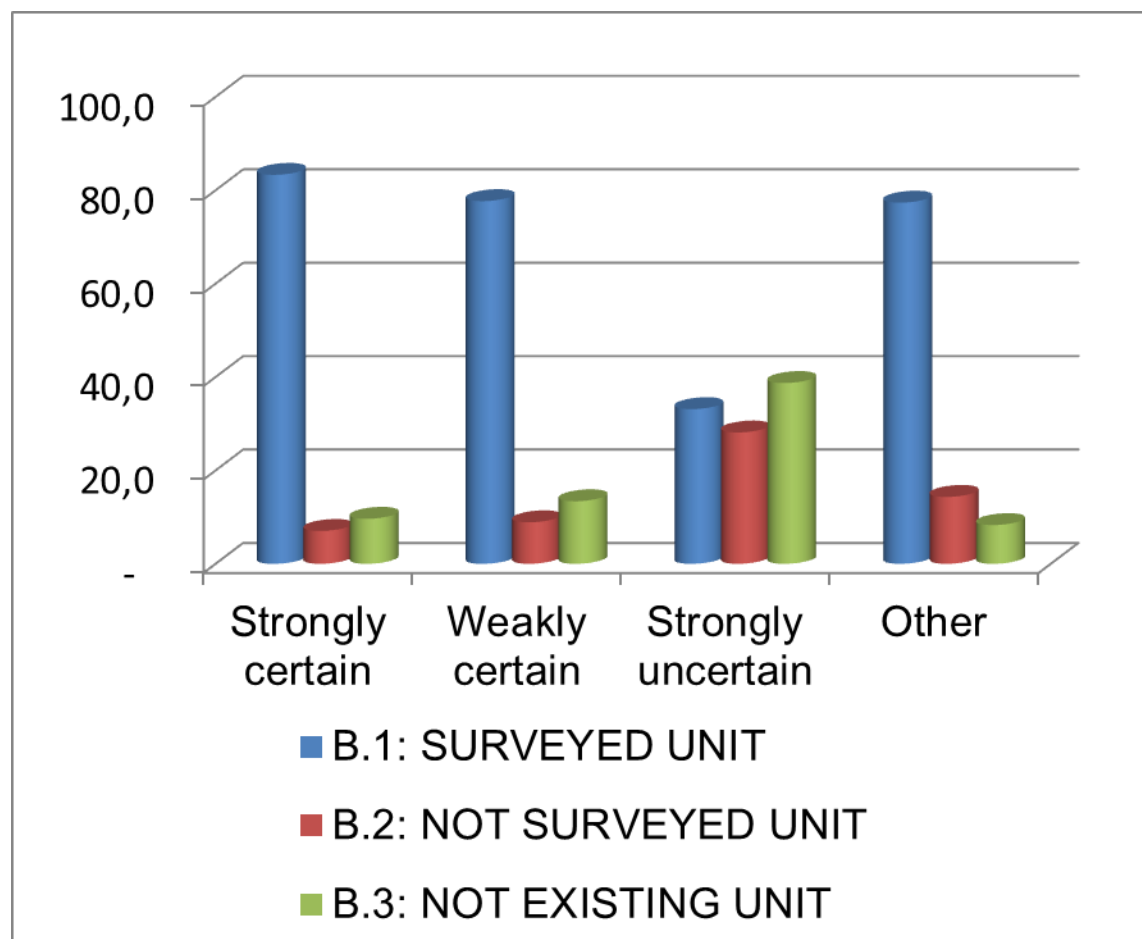# SURVEY RESULTS: distribution of units with B interview's outcome according to SFR eligibility

21,099 units out of 21,565 were recorded with a «**B**»

outcome (B1. Surveyed unit; B2. Not surveyed unit, B3. Not existing unit)
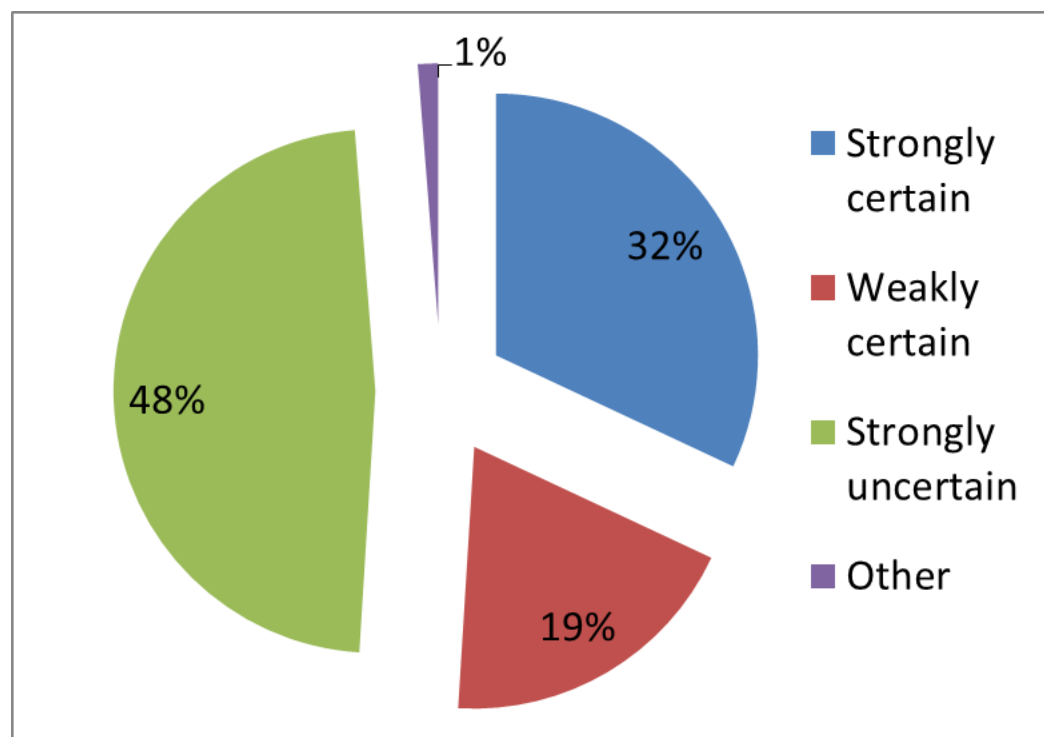
SURVEY RESULTS: distribution of units by interview's outcome

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SURVEY RESULTS: distribution of units by SFR eligibility and B outcome

BACK OFFICE DOUBLE CHECK

Strongly and weakly certain:
Recorded as B3a - Never been an agricultural unit
Mainly due to the fact that the holder doesn't recognize itself as an agricultural holding

Weakly uncertain units:
Recorded as existing unit (B1)
But in fact they were B1 inactive,
units not cultivated and without any kind of agricultural activity

B2a Holder not found (12,3% of total outcomes):
mainly concentrated on uncertain units (75%)
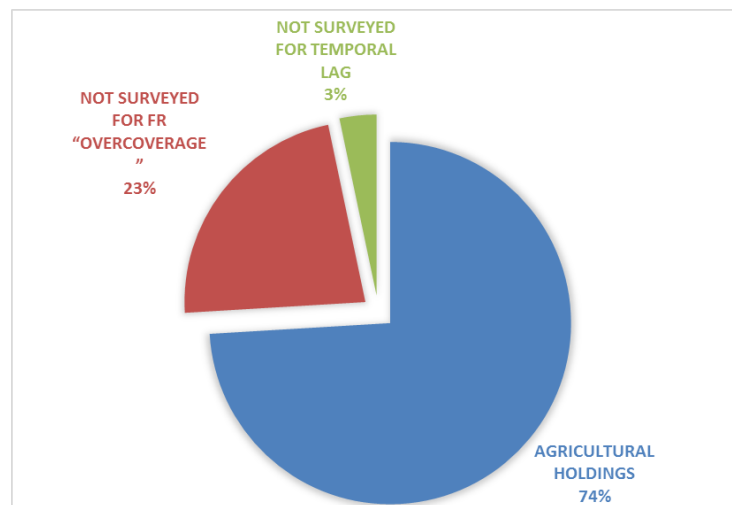
EVALUATION OF THE RESULTS

Riclassification of the interview's outcomes and estimations with calibrated sample weights

(Vannini I.; Righi P.)
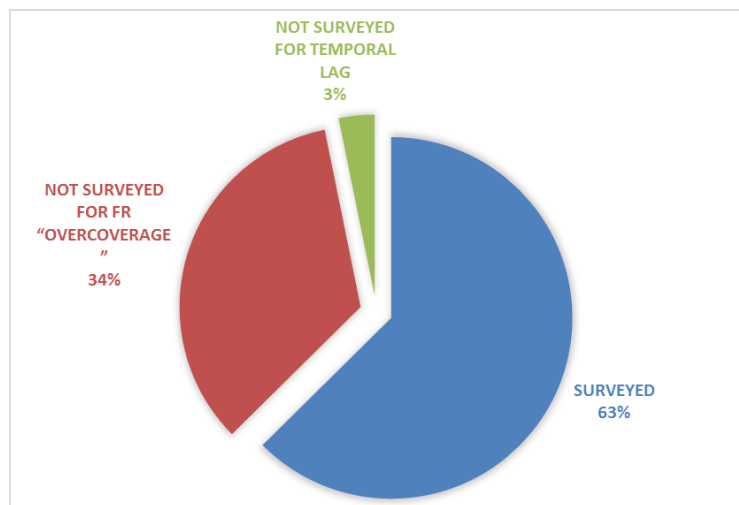
SAMPLE (Gnesi C.; Mancini L.)

FARM REGISTER (Vannini I.; Righi P.)

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EVALUATION OF THE RESULTS

Estimation of AH number and standard working days

(Vannini I.; Righi P.)

FARM REGISTER				AGR CENSUS 2010
# Agricultural holdings	Confidence interval			# Agricultural holdings
	CI.l(95%)	CI.u(95%)	CV%	
1,596,028	1,573,050	1,619,006	0.73	1,620,884

FARM REGISTER				AGR CENSUS 2010
# Standard working days	Confidence interval			# Standard working days
	CI.l(95%)	CI.u(95%)	CV%	
195,040,795	188,638,613	201,442,977	1.67	200,904,955

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EVALUATION OF THE RESULTS

Evaluation of the eligibility rules

(Vannini I, Mancini L.)

A logistic regression model was adopted to improve the prediction of the unit being an agricultural holding

The existing 38 rules were used to predict the probability of a unit being eligible determining an improvement in the classification of the units of the Farm Register
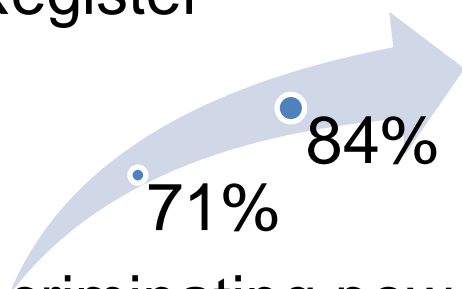
84%   units included correctly in the FR

71%

The discriminating power of alternative hierarchical eligibility rules was estimated using a non-parametric approach (permutations).

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EVALUATION OF THE RESULTS

For FR 2014 implementation a mixed methodology was adopted

1) Probabilistic model of Eligibility estimation

2) Deterministic model based on specific strong rules for including / excluding units (duplications) / based on changes due to AH demography

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FR characteristics

FR includes:

✓ Holder's DB: ID, general information, residence

address, juridical form

✓ AH DB: ID, structural information (land, livestock)

AH location, AH headquarter location

✓ Cadastral Land DB: land use according

+ Complete and integrated List of the fiscal codes

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Thanks for paying attention!

Contacts

Giampaola Bellini (bellini@istat.it) for RiCoFarm survey
Luca Mancini (lmancini@istat.it) for the definition and measurement of the coverage error and the non-parametric approach to the evaluation of the eligibility rules;
Ilaria Vannini for sampling criteria and logistic model
Paolo Righi (parighi@istat.it) for estimates
Caterina Viviano (viviano@istat.it) for FR implementation

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