Direct Financial Losses of Small-Scale Swine Farmers & Risk Factors of ASF in Caraga Region, Philippines

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21-23 August 2023; Yogyakarta, Indonesia
- Philippines: SE Asia
- Pop: >111M people
- Islands: 7,640; 3 big islands

Where is Mindanao?
- Multibillion industry, 2\textsuperscript{nd} to rice
  - 12.7 M pigs nationwide (2019)
  - 3.6 M pigs in Mindanao
- 65% in smallholder farms; <20 sows
- ASF entered in 2019
  - decreased >30% of pig population
Almost all provinces have been affected
Farmers, partially indemnified by government
Still spreading; remains a big threat
Priority of government
Direct financial losses are not estimated
Risk factors are not fully identified
General Objective

• Estimate the direct financial losses and determine the risk factors of ASF in small-scale swine farming in Caraga Region, Philippines.
Specific Objectives

- Determine the number of small-scale ASF-affected households and pigs in the surveyed areas;
- Estimate the direct financial losses from ASF in selected outbreak areas; and,
- Identify the risk factors for ASF among small-scale pigs.
How it was done?

Permission
- Ethics permit
- From study sites
- From respondents

Financial Survey
- 9(+), 9(−) ASF farmers/village

Data Analysis
- Microsoft Excel
- Univariate Chi-square test (SPSS)

RF Survey
- questionnaire

- Caraga Region, 3 provinces, 3 towns/cities per province; 2 villages per town/city

- Triangulation with local officials
Study Sites/Coverage

- Caraga Region, Mindanao, Philippines
- All areas were ASF affected
- Surveyed: 3/6 provinces
- 18 villages/9 towns
- 324 swine farmers
- Oct-Nov 2021
Data Collected: FS

- Number culled out
- Number of mortality
- Prices during outbreaks
- Diagnostic expenses
- Culling expenses
- Biosecurity expenses
- Government indemnification fees
- Insurance

**Total Direct Losses**

- (Cost of pigs + Expenses) – Indemnification/Insurance
In Agusan del Norte

With City Vet of Butuan City

Interview with respondents
In Surigao del Sur

With the Provincial Vet of Surigao del Sur

Interview with a respondent
RESULTS
ASF-Affected Areas: Surigao Sur

1st ASF outbreak area in the Region; 11 Nov 2020

- 7 towns, 2 cities were affected by ASF as of October 2021

My hometown
ASF-Affected Areas: Surigao del Norte

- 5 towns were affected by ASF as of Oct 2021

Siargao Island; Surfing Capital of the country

1st ASF outbreak area in the Province; May 2021
ASF-Affected Areas: Agusan del Norte

- 3 towns, 1 city were affected by ASF, as of November 2021

1st ASF outbreak area in the Province; June 2021
Caraga Region

• 6 provinces; 67 towns/cities,
• ~20 towns/cities are affected by ASF during the survey
Caraga Region

- 1,311 villages
- ~446 villages are affected by ASF
No. of Affected Households

- ~14 families per town/city
- 9 surveyed towns/cities

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agusan del Norte</td>
<td>171</td>
</tr>
<tr>
<td>Surigao de Sur</td>
<td>136</td>
</tr>
<tr>
<td>Surigao del Norte</td>
<td>115</td>
</tr>
<tr>
<td>Location</td>
<td>No. of ASF-Affected Pigs</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Central Mindanao University</td>
<td>332, 1,062, 412, 365, 1,394</td>
</tr>
<tr>
<td>Surigao de Sur</td>
<td>350, 567, 412, 512, 460, 824</td>
</tr>
</tbody>
</table>

**No. of ASF-Affected Pigs**

- **Surigao de Sur**
  - Total: 1,394
  - Mortality: 332
  - Culled: 1,062
  - Total: 1,394

- **Agusan del Norte**
  - Total: 567
  - Mortality: 350
  - Culled: 217
  - Total: 567

- **Surigao del Norte**
  - Total: 824
  - Mortality: 412
  - Culled: 100
  - Total: 824

- **Average**
  - Total: 824
  - Mortality: 365
  - Culled: 460
  - Total: 824

Legend:
- Blue: Mortality
- Orange: Culled
- Gray: Total
Direct Financial Losses (DFL, US$)

- DFL among 3 surveyed provinces = 258,900
- Average DFL per province = 86,300
- Average DFL per town = 20,600
- Average DFL per village = 7,037
- Average DFL per farmer = 950

Total Estimated DFL in Caraga Region = 412,000 (~20 towns affected)
Estimated DFL in Mindanao (DFL)

- Mindanao: 455 towns/cities
- During Survey (~30% Affected)
  - DFL: 2.8 M US$; 159 M PhP
- At Present (~80% Affected)
  - DFL: 7.5 M US$; 423 M PhP
Risk Factors for ASF

- Swill feeding
- Close contact with other pigs
- Do not practice handwashing
- Do not change clothes
- Do not quarantine new stocks

Risk Factors for ASF

- Allowing visitors in the farms
- Selling of pigs through middlemen
  - Facilitate spread of ASF virus

https://saad.da.gov.ph/from-fishing-to-swine-raising-for-a-better-future
Hiring Outside Boars

- Hired by pig owners for their sows
- Service several sows in various barangays
- Cause of outbreak in one barangay in Surigao del Norte

A boar for hire in Butuan City, Mindanao
Improper Carcass Disposal

- Dead pigs thrown to the Agusan River
- Riverside barangays had ASF outbreaks a week later

(Photos courtesy of Dr. E. Nono)
Conclusions

- Number of areas, households and pigs affected by ASF in Caraga Region is significant
- Direct financial losses of small-scale swine farmers are high
- Identified risk factors are important information in enhancing current ASF control strategies
The government & private groups should assist affected farmers & provide alternative livelihood

Identified risk factors should be addressed

Local policies/ordinances to support the control and eradication efforts for ASF in Mindanao should be formulated and strictly implemented
Ways Forward

- Sustain surveillance of ASF and other diseases in abattoirs, wet markets and farms
- Assist in enhancing border control
- Propose for the establishment of Pig Diseases Research Center at CMU
- Assist affected farmers in their livelihoods
Moving Forward

- State-of-the-art mobile diagnostic laboratory for ASF & other animal diseases
- First kind in the country
With Gratitude

- CMU & our **President**; CMU-CVM & **Dean**
- Local Government Offices
- Provincial Municipal /City Vets/Technicians
- Research Students, Staff
- DA-BAI Directors R. Domingo & R. Morales
- Farmer Respondents
- Universitas Gadjah Mada
- **GREASE** Network
Thank you for listening!
Please, SAVE US from ASF...