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Meat research for market development for indigenous pork produced by smallholders in northern Vietnam

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Rationale



- In Vietnam, demand for **lean pork** has been increasing in recent years, resulting in a wide adoption of crossbreeding with exotic genotypes by commercial pig farmers (Luc et al., Anim Prod Sci, 2014).
- The domination of lean hybrids in OECD countries and highly differentiated consumer needs fostered the creation of **niche markets** for high-quality pork production (e.g., Pugliese & Sirtori, Meat Sci, 2012).
- Customer preferences for native pork have also been reported for Vietnam (Lapar et al., ILRI report #24, 2010), but there is hardly any information on the feasibility of establishing value chains for indigenous pork produced by **ethnic minority** farmers organized in **cooperatives**.



Fig.:
Photos by
Nguyen Duy Linh.

Transfer of a Community-Based Breeding Program Incorporating Local Breeds into Sustainable Practice in Son La Province, Northwest Vietnam



- **Overall objective**
 - Diversify and stabilize the **incomes** of farmers
- **Specific objectives**
 - Establish an **organizational structure** for breeding and marketing
 - Safeguard **quality and traceability** of regionally produced meat
 - Contribute to the conservation and **valorization** of the Ban breed

concept presented by **Valle Zárate & Markemann, Proc WCGALP, 2010**

At the interface of meat research and market development

1. Identification of potential products and services

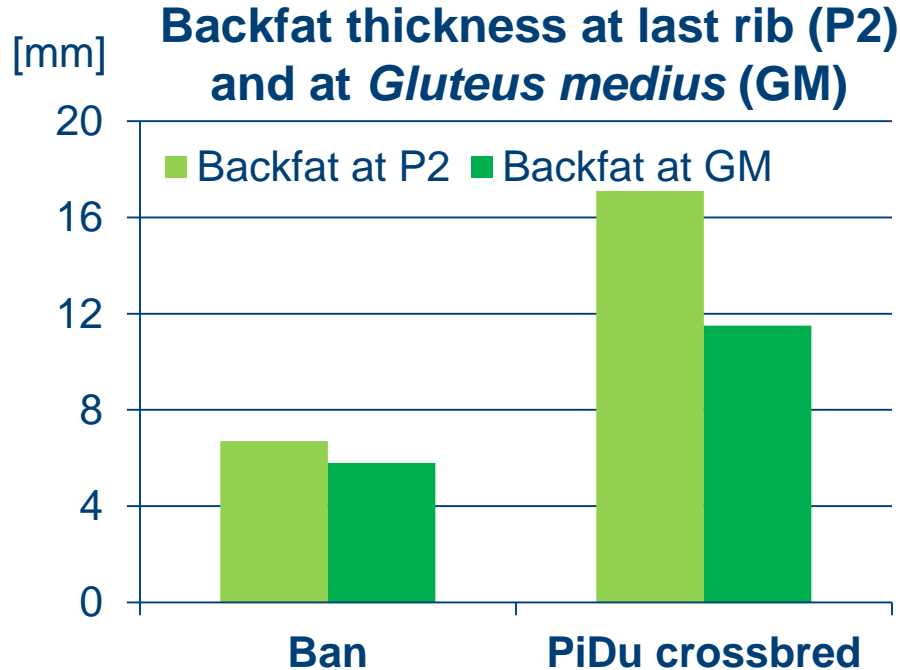
- Identification of niche markets for breed-specific products (Phuong et al., LRRD, 2014; Huyen et al., AsiaHiLand, 2015)
- Characterization of breed-specific trait levels: Comparison of purebred Ban pigs [6-7 months, 15 kg live weight, n=33] and commercial Piétrain x Duroc (PiDu)-sired crossbreds [6-7 months, 58 kg live weight, n=12]

2. Planning and implementing a marketing campaign

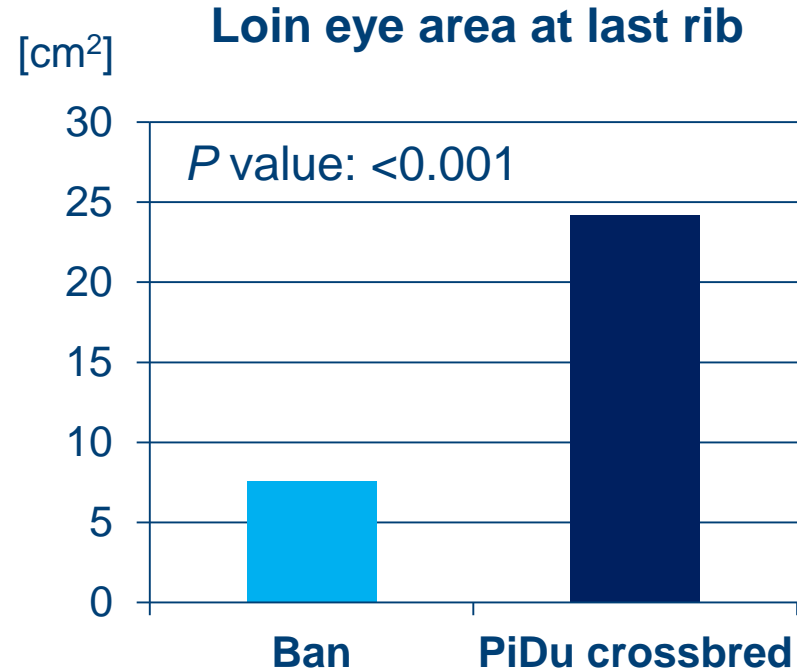
- Mapping of distribution channels (Huyen et al., AsiaHiLand, 2015)
- Elaboration of a common definition of quality and a pricing system: Evaluation of carcass quality of Ban pigs [n=51] of different live weight categories

modified after **FAO Animal Production and Health Guidelines No.14, 2013**

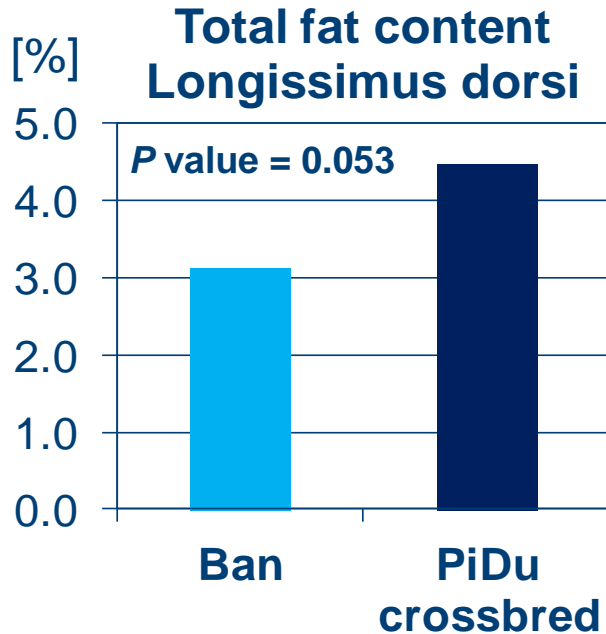
Backfat thickness and meatiness



P value for backfat at P2: <0.001
P value for backfat at GM: <0.001



Intramuscular lipid content and fatty acid pattern



- **Proportion of saturated fatty acids**
Similar in Ban pigs and PiDu crossbreds
- **Proportion of monounsaturated fatty acids**
Increased for PiDu crossbreds ($P=0.001$)
- **Proportion of polyunsaturated fatty acids**
Increased for Ban pigs ($P=0.003$)
- **PUFA/SFA ratio**
0.58 for Ban pigs, **0.33** for PiDu crossbreds
- **Peroxidation index**
30 for Ban pigs, **17** for PiDu crossbreds



Occurrence of meat defects

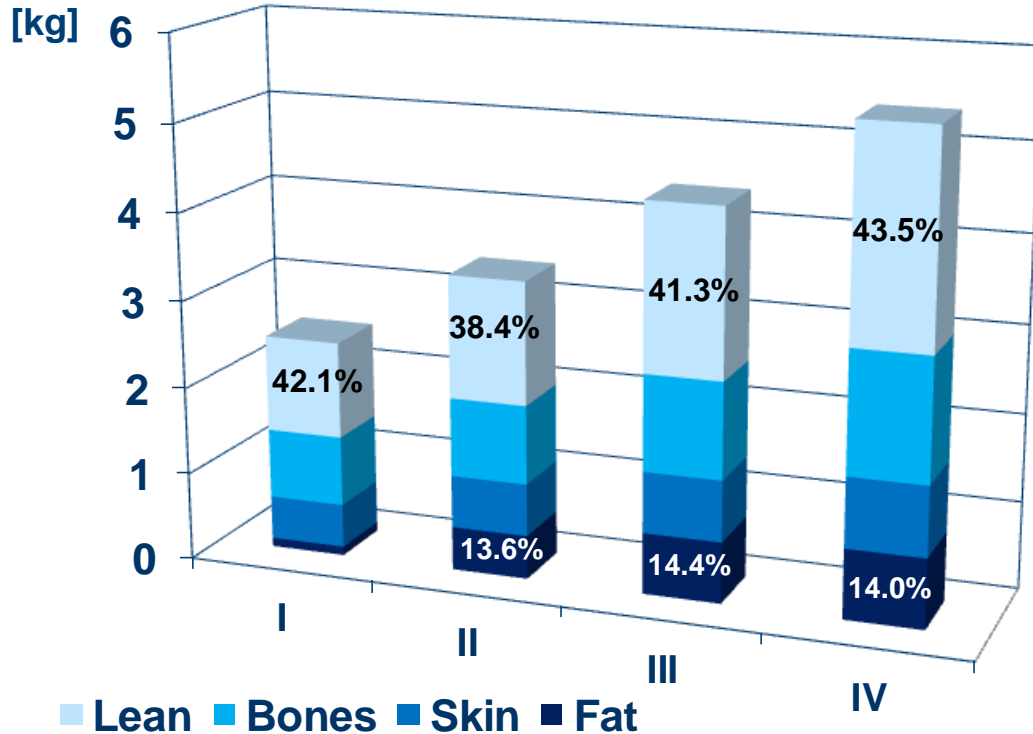
Fig.:
Scalding and de-hairing in a small-scale abattoir

Frequency of meat defects in the loin (%)

		PSE		DL	DFD
		pH1 <5.8	<6.0	>7%	pH24 >6.0
Ban	(n=33)	3	12	33	9
PiDu crossbred	(n=12)	0	50	8	17
<i>P</i> value (exact Fisher test)		1.000	0.013	0.136	0.598

pH1=pH at 45 min p.m.; pH24=pH at 24 h p.m.; DL=drip loss at 72 h p.m.

Effect of live weight class on weight and composition of Ban carcass halves

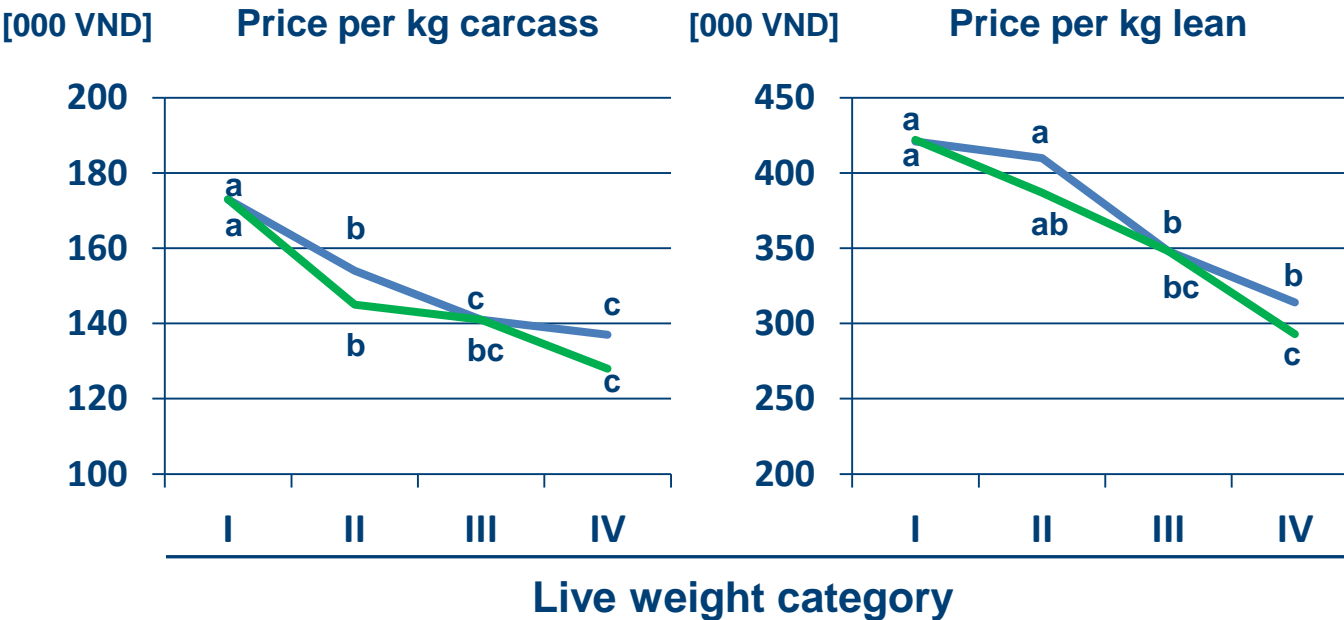


Live weight class

- <12kg: I
- ≥12 to <15kg: II
- ≥15 to <18kg: III
- ≥18kg: IV



Effect of live weight at slaughter on commodity prices under degressive pricing systems



- Pricing system A**
(blue line)
- I: 90k VND/kg LW
 - II: 85k VND/kg LW
 - III: 80k VND/kg LW
 - IV: 75k VND/kg LW
- Pricing system B**
(green line)
- I: 90k VND/kg LW
 - II + III: 80k VND/kg LW
 - IV: 70k VND/kg LW

within pricing system, categories with the same letter did not differ significantly ($P > .05$)

Conclusions

- Indigenous Ban pork exhibits distinguishable sensory- and health-related features, when produced within a specific production system.
- A market niche for clearly defined products of Ban pork could be established when requirements of retailers are better understood and incorporated in the value chain.
- Improvements of profitability along the value chain appear to be feasible by moderately increasing live weights of slaughter pigs.
- Further steps to secure sales of Ban pigs and to strengthen the bargaining power of cooperative members are required (formalization of contracts, active acquisition of more costumers).



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