

COURSE WHITE PAPER

Hog Butchery 101

Complete professional pork carcass fabrication — from slaughter to shelf, including curing science.

9

LESSONS

5

MODULES

29

QUIZ QUESTIONS

15

FINAL EXAM QS

COURSE OVERVIEW

Hog Butchery 101 is a comprehensive professional course covering every phase of pork processing — from USDA inspection requirements and pork-specific pathogen science, through the six wholesale primals, complete carcass breakdown, retail fabrication, and the chemistry of curing and smoking. Special emphasis is placed on curing science (nitrates vs. nitrites, Cure #1 vs. Cure #2, dry vs. wet curing) — the most regulated and most frequently misunderstood topic in meat processing. Students who complete this course are prepared for professional pork fabrication, custom hog processing, and in-house charcuterie production.

WHO SHOULD TAKE THIS COURSE

- Pork processors and custom hog slaughter operators navigating USDA/state regulations
- Charcuterie producers and in-house curing operations needing nitrite chemistry knowledge
- Farm-direct hog operators who sell whole and half animals to consumers
- Chefs and restaurant operators working with whole hog or pork primals
- Butchers cross-training from beef into pork fabrication

PROFESSIONAL OUTCOMES

- Identify and fabricate all six pork primals using NAMP/IMPS standards
- Understand Trichinella, PSE/DFD pork, Yersinia, and Salmonella control in pork processing
- Execute the five-muscle ham break, loin fabrication, and belly squaring
- Formulate legal cures using Cure #1 and Cure #2 within USDA 9 CFR 424.22 limits
- Calculate whole-hog cutout value and custom processing fees
- Earn a Butcher Bud Academy diploma in Hog Butchery 101

Course Syllabus

Hog Butchery 101 · 5 Modules · 9 Lessons · 75% passing grade on final exam

MODULE 1 Pork Safety, Regulations & Carcass Overview

Lesson 1: Pork-Specific Pathogens & USDA Inspection

- Trichinella spiralis — history, risk, 145°F vs. 160°F rules
- Salmonella transmission routes in swine
- Yersinia enterocolitica — psychrotrophic growth risk
- USDA ante-mortem & post-mortem inspection (FMIA)
- Scalding, dehairing, singeing — sanitation implications

Lesson 2: Pork Carcass Structure & Dressing Percentage

- Market hog specifications (240–280 lb live weight)
- Dressing percentage 70–75% — why higher than beef
- NPPC grading: backfat thickness & loin eye area
- PSE vs. DFD pork — causes, detection, shelf life impact
- 216 swine bones & key fabrication landmarks

Quiz: 7 Questions — 70% to pass

MODULE 2 The Six Pork Primals

Lesson 3: Shoulder, Loin & Belly — The Working Primals

- Boston butt — muscles, money muscle, coppa
- Picnic shoulder — uses & bone-to-meat ratio
- Pork loin — blade end, center, sirloin end
- Tenderloin (psoas major) — cleaning & portioning
- Belly anatomy — lean streaks, spare ribs, bacon

Lesson 4: Ham, Hock & Variety Meats

- Ham muscle map — inside round, outside round, knuckle, eye of round
- Ham product spectrum — fresh to 36-month prosciutto
- Five-muscle ham seam break
- Spare ribs vs. baby back ribs — anatomy & legal distinction
- Variety meats revenue table — liver, head, trotters, guanciale, chicharrones

Quiz: 6 Questions — 70% to pass

MODULE 3 Carcass Breakdown & Primal Separation

Lesson 5: Splitting, Ribbing & Primal Separation

- Hog carcass split — chine & aitch bone
- Shoulder-loin break between ribs 4 and 5
- Ham separation at hip joint
- Belly/loin separation — distance from loin eye
- Membrane removal technique

Lesson 6: Loin Fabrication — Chops, Roasts & Tenderloin

- NAMP codes 410, 411, 412, 415, 422
- Chop thickness standards: thin to double-cut
- Canadian bacon — pump rate, tumbling, smoke schedule
- Crown roast fabrication
- Boneless loin seam butchery sequence

Quiz: 5 Questions — 70% to pass

MODULE 4 Curing, Smoking & Bacon Science

Lesson 7: The Science of Curing — Salt, Nitrates & Nitrites

- Salt: water activity reduction & protein denaturation
- Nitrite: Clostridium botulinum inhibition
- USDA 9 CFR 424.22 limits — 156 ppm sodium nitrite max
- Prague Powder #1 vs. #2 — never interchange
- Wet curing vs. dry curing parameters
- Cold vs. hot smoking applications

Lesson 8: Belly Fabrication, Bacon Production & Fat Utilization

- Belly quality assessment criteria
- St. Louis rib trim — rib tips & diaphragm flap
- 8-step bacon production sequence
- Cure time: 5–7 days per inch of thickness
- Lard rendering — leaf lard vs. back fat vs. belly fat

Quiz: 6 Questions — 70% to pass

MODULE 5 Whole-Hog Yield, Economics & Charcuterie

Lesson 9: Whole-Hog Yield Analysis & Economic Optimization

- 200 lb HCW cutout value calculation
- Curing economics — fresh belly to bacon value multiplier
- Head, jowl & trim: guanciale 8x revenue multiplier
- Custom whole-hog processing fee structures
- Sausage fat ratios by type — Italian, bratwurst, chorizo

Quiz: 5 Questions — 70% to pass

>> Final Exam: 15 questions — 75% required to pass — 3 attempts included — Diploma issued on pass

Curing Agent Reference — Regulatory Limits

Curing Agent	Max Ingoing Level	Product Type	CFR Reference
Sodium Nitrite (NaNO ₂)	156 ppm	Most cured meats	9 CFR 424.22
Sodium Nitrite	200 ppm	Dry-cured products	9 CFR 424.22
Sodium Nitrate (NaNO ₃)	1,718 ppm	Dry-cured only	9 CFR 424.22
Potassium Nitrite (KNO ₂)	200 ppm	Dry-cured products	9 CFR 424.22
Prague Powder #1 usage	1 oz per 25 lbs meat	Cooked/smoked	Industry standard
Prague Powder #2 usage	1 oz per 25 lbs meat	Dry-cured aged	Industry standard

Key Regulations Covered

Regulation	Topic	Application
21 U.S.C. §§ 601–695 (FMIA)	Federal Meat Inspection Act	All commercial hog slaughter
9 CFR Part 417	HACCP requirements	All federally inspected plants
9 CFR Part 424.22	Curing agent limits — nitrites/nitrates	All cured pork products
USDA 2011 Pork Safety Update	145°F whole cuts, 160°F ground	Commercial pork only
NAMP/IMPS Standards	Cut identification & specs	Wholesale purchasing & processing
NPPC Grading Standards	Backfat & loin eye area	Commercial pork grading
Ham Labeling Regs (9 CFR 319)	Water added labeling tiers	Cured ham products

Whole-Hog Value Potential

Product	Base Material	Base Value	Transformed Value	Multiplier
Sliced Bacon	Fresh belly (26 lbs)	\$91	\$176+	~2x
Guanciale	Jowl (2 lbs)	\$3	\$25	~8x
Head Cheese	Pork head (12 lbs)	\$9	\$48–72	5–8x
Chicharrones	Pork skin (6 lbs)	\$3	\$24	~8x
Smoked Ham	Fresh ham (20 lbs)	\$60	\$98	~1.6x
Leaf Lard	Kidney fat (3 lbs)	\$4.50	\$21–24	~5x

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