

# Meat Science Extension — Youth Programs

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First of all, I want to acknowledge and thank the many meat extension specialists that have helped me in preparation of this presentation. Several extension specialists were sent a survey regarding their meats youth program. Their thoughts are reflected throughout this presentation.

Working with youth is both a challenging and satisfying experience. The primary audience of our program are the youth enrolled in the 4-H and Vocational Agriculture programs. Consequently, we are working with a wide age group — usually 9-19 years old.

The objectives of youth meat programs are to gain knowledge in:

- 1) Selecting, buying and using meat (better consumers)
- 2) Meat nutrition
- 3) Relating live animal production to meat as a food
- 4) Economics of meat production
- 5) Opportunities in the livestock and meat industry

The meats program is very adaptable. It fits in very well with other youth activities such as livestock and foods projects. Also, meat projects are suitable for both rural and urban youth.

I would like to review with you some of the activities currently taking place in the youth meats program across the country.

1. **Meat Identification and Judging:** For many years, meat identification and judging has been the "bread and butter" of the youth program. Although procedures vary from state to state, retail cut identification is the common thread in our youth program. Participation has been good in this activity. Oklahoma had 2,000 members enrolled last year.

The Meat Identification and Judging contest consists of: a) carcass and wholesale cut judging, b) retail cut identification, c) retail cut judging, and d) reasons or questions. In carcass judging, we are teaching the differences that influence live animal and carcass value. In retail cut identification, members are taught how to recognize the species, wholesale cut name, retail cut name, type of cut and cookery methods (Figure 1). Identification aids in both meat merchandising and preparation. Retail cut judging simulates consumer selection of meat cuts. Members learn about meat quality,

lean-to-fat ratio, lean-to-bone ratio and packaging defects. Reasons and questions enhance communication skills as well as teaching the terminology associated with meat selection.

Meat identification and judging is taught through agent and leader training meetings, county workshops and district clinics. Most states have state contests which allow the winning team to compete at the American Royal 4-H Identification and Judging Contest.

2. **Live Animal and Carcass Evaluation:** The youth meat program probably had its roots in carcass evaluation. Almost all states surveyed reported involvement in some type of carcass evaluation program. Frequently, the carcass data is a follow-up to a live animal show. Most extension specialists conduct educational meetings on how to collect and use carcass data information. Follow-up activities to live shows consist of cooler visits, videotapes and slide/cassette tape lessons. At the 1981 Nebraska Spring Lamb Show, all lamb classes were videotaped and carcass results placed on AgNet Computer Systems for agents to use in follow-up educational programs. New York and Nebraska conduct county fair judging clinics in which both live animal and carcass evaluation are taught to enhance the educational experience at county fairs. Other teaching situations include cooler visits to see evaluated carcasses, display cooler trailers, and frozen carcasses and cross sections. Carcass evaluation is used to teach the differences that exist in live animals, the economic difference in live animals and carcasses and the marketing of live animals and carcasses.
3. **Meat Utilization and Consumer Awareness:** Most specialists report that more work is needed in this area. Many specialists conduct educational programs in this area on the adult level. However, I personally feel that if we are to be successful in consumer education, we *must* start by working with youth.

Teaching activities in meat utilization and consumer awareness include educational workshops and demonstrations on selecting, storing, and cooking meat products. Wisconsin youth prepared a meat animal "action center" at the state fair. Last year, the members conducted a taste panel on pork cooked to 160° and 170°F.

Some meat identification and judging contests include a consumer information quiz. Questions focus on meat selection, grading, inspection, preparation and storage. In Nebraska, the source of questions is the MEAT BOARD MEAT BOOK.

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4. **Sausage and Cured Meats:** There are very limited teaching materials available in this area. However, Dennis Buege reports that one of his most successful activities has been a sausage-making demonstration. Some states have curing activities resulting in a ham show and sale.

A program I would like to highlight is the Florida 4-H Hog and Ham program. This program is an example of a youth project that covers pork production to consumption. The 4-H member selects a feeder pig to be fed to

slaughter. The members compile data on weight and feed consumption. The hogs are brought to the university meat laboratory for slaughter. Each 4-H member helps slaughter his hog and participates in inspection procedures. The pork carcasses are evaluated and carcass data information recorded and compared. Each member then cuts and processes the carcass into retail cuts. Hams, bellies and picnics are cured. 4-H members construct a 4-H Smokehouse to smoke their sausage, picnics and bellies. The hams remain in a state in-

Figure 1. Example of a 4-H Retail Cut Identification Card.

NEBRASKA 4-H MEAT IDENTIFICATION CARD	
SPECIE	RETAIL NAMES
B — Beef	<b>Chops, Roasts/Pot Roasts, Steaks, Slices</b>
L — Lamb	
P — Pork	
<b>WHOLESALE CUT (Primal Cut)</b>	
a. Breast	1. American Style
b. Brisket	2. Arm
c. Chuck	3. Arm, Boneless
d. Flank	4. Arm, Picnic
e. Ham	5. Blade
f. Jowl	6. Blade Boston
g. Leg	7. Bottom Round
h. Loin	8. Butterfly
i. Plate	9. Center
j. Rib (Rack)	10. Center Loin
k. Round	11. Center Rib
l. Shank	12. Cross Rib
m. Shoulder	13. Cross Rib, Boneless
n. Side (Belly)	14. Cubed
o. Spareribs	15. Double
p. Variety Meats	16. Eye Round
q. Various	17. Flank
	18. Fresh Ham
	19. Frenched Style
	20. Heel of Round
	21. Loin
	22. Neck
	23. Porterhouse
	24. Rib
	25. Rib Eye
	26. Rib, Large End
	27. Rib, Small End
	28. Rib, Small End, Boneless
	29. Round
	30. Round, Boneless
	31. Rump, Boneless
	32. Portion
	33. 7-Bone
	34. Shank Portion
	35. Shell Sirloin
	36. Shoulder, Boneless
	37. Sirloin
	38. Sirloin, Boneless
	39. Sirloin, Flat Bone
	40. Sirloin, Half
	41. Sirloin, Pin Bone
	42. Sirloin, Round Bone
	43. Sirloin, Wedge Bone
	44. Smoked Center
	45. Smoked Center, Boneless
	46. Smoked Ham
	47. Smoked Ham, Boneless
	48. Smoked Loin
	49. Smoked Rib
	50. Smoked Rump Portion
	51. Smoked Shank Portion
	52. Smoked Shoulder Picnic
	53. Square Cut
	54. T-Bone
	55. Tenderloin
	56. Tip
	57. Tip, Cap Off
	58. Top Loin
	59. Top Loin, Boneless
	60. Top Round
	61. Top Sirloin Boneless
	<b>Variety Meats</b>
	62. Brains
	63. Heart
	64. Kidney
	65. Liver
	66. Sweetbreads
	67. Tongue
	<b>Other Cuts</b>
	68. Back Ribs
	69. Beef for Stew
	70. Breast
	71. Brisket, Boneless
	72. Canadian Style Bacon
	73. Country Style Ribs
	74. Cross Cut
	75. Cross Cut, Boneless
	76. Fresh Side
	77. Fresh Side, Sliced
	78. Ground Beef
	79. Hock
	80. Riblets
	81. Sausage
	82. Shank
	83. Short Ribs
	84. Sirloin Cutlets
	85. Slab Bacon
	86. Sliced Bacon
	87. Smoked Hock
	88. Smoked Jowl
	89. Spareribs
<b>COOKERY METHOD</b>	
I — Dry Heat	
II — Moist Heat	
III — Dry/Moist Heat	

NAME _____		CONTESTANT NUMBER _____				
CUT NO.	SPECIE (2 pt)	PRIMAL (4 pt)	RETAIL (5 pt)	TYPE (1 pt)	COOKERY (1 pt)	SCORE
Example:	Beef B	Loin h	T-Bone 54	Steak St	Dry I	
26.	_____	_____	_____	_____	_____	_____
27.	_____	_____	_____	_____	_____	_____
28.	_____	_____	_____	_____	_____	_____
29.	_____	_____	_____	_____	_____	_____
30.	_____	_____	_____	_____	_____	_____
31.	_____	_____	_____	_____	_____	_____
32.	_____	_____	_____	_____	_____	_____
33.	_____	_____	_____	_____	_____	_____
34.	_____	_____	_____	_____	_____	_____
35.	_____	_____	_____	_____	_____	_____
36.	_____	_____	_____	_____	_____	_____
37.	_____	_____	_____	_____	_____	_____
38.	_____	_____	_____	_____	_____	_____
39.	_____	_____	_____	_____	_____	_____
40.	_____	_____	_____	_____	_____	_____
41.	_____	_____	_____	_____	_____	_____
42.	_____	_____	_____	_____	_____	_____
43.	_____	_____	_____	_____	_____	_____
44.	_____	_____	_____	_____	_____	_____
45.	_____	_____	_____	_____	_____	_____
46.	_____	_____	_____	_____	_____	_____
47.	_____	_____	_____	_____	_____	_____
48.	_____	_____	_____	_____	_____	_____
49.	_____	_____	_____	_____	_____	_____
50.	_____	_____	_____	_____	_____	_____
<b>TOTAL SCORE</b>						_____

spected meat plant curing cooler to complete the curing process. All cured hams are exhibited at the county fair and sold. Cash awards are given based upon completed records beginning with pig selection and feeding, demonstration, and terminating with the cured ham placing.

In the past, the 4-H ham auctions have returned enough money to pay for the live hogs. The remaining portions are used by the 4-H member's family.

Some of the problems encountered by meat specialists in conducting the youth meat activity are time to develop educational materials, limited training and experience of agents and leaders and conflict or overlaps with home economics and food science food programs.

Many meat extension specialists feel that we need to move away from the traditional meat judging activity to a more specific program involving all areas of meat education. However, we must remember that meat identification and

judging contests have been very successful and do provide access to youth for our meat educational programs. Most specialists agree that we do need a coordinated educational curriculum that provides for a total learning experience (Figure 2). This curriculum would involve all areas of meat education and provide educational materials, lessons and activities to teach about meats. Funding is needed to begin development of these educational materials. It is apparent that many specialists have developed excellent meat science youth programs but there is little coordination between states. Many feel

we need a national program culminating in a national awards program.

Working with youth is a challenging experience, but very rewarding, especially when youths' eyes light up in excitement when they've learned or mastered a new concept or goal. In addition to teaching youth, our programs are effective in educating adults. A strong youth meat science curriculum is needed, for a better trained youth today will result in a more knowledgeable meat consumer tomorrow.

Figure 2. Example of a Meat Science Curriculum

Suggested 4-H Lesson Titles and Learning Objectives		
<b>Beginning</b>		
<i>Cook and eat beef, pork, lamb &amp; veal:</i> To become acquainted with the cooked flavor of beef, pork, lamb & veal whole muscle cuts.	<i>Meat Animal Evaluation:</i> To determine differences among breeding animals, market animals and meat as well as the relationship among the three.	<i>Sharpen knife:</i> To be able to properly sharpen a knife for its intended use.
<i>Build a pizza:</i> To understand that meat products can be combined with other foods to form a single, tasty, nutritious finished product.	<i>Visit retail store:</i> To become acquainted with the variety of meat products available in a retail store.	<i>Carve a Roast:</i> To understand and apply basic principles of roast carving, bone and muscle structure, serving size and the skills of knife handling.
<i>Cook &amp; eat a hot dog:</i> To become acquainted with the cooked flavor of a ground beef product.	<i>Sharpen knife:</i> To understand the basic concepts and importance of knife sharpening.	<i>Cure meat:</i> How to cure a fresh meat product for flavor, color and taste changes.
<i>Cook and eat hamburger:</i> To become acquainted with the cooked flavor of a ground beef product.	<i>Carve T-Bone Steak:</i> To understand and apply the basic principles of steak carving, bone structures, serving size and the skills of knife handling.	<i>Can meat:</i> To understand a basis of preservation by canning meat for future consumption.
<i>Spoil meat:</i> To observe the importance of refrigerating meat to retard microbial growth and thus prevent meat spoilage.	<i>See and cook PSE pork:</i> To determine visual, palatability, cooking characteristics and subsequent CPS differences between PSE, normal and DFD fresh pork or beef.	<i>Design a label:</i> To gain experience regarding labeling laws and their meaning.
<i>Plan, prepare and eat a meal with and without meat:</i> To gain an appreciation of meat's contribution to the flavor and texture of a meal as a group.	<i>Make jerky:</i> To understand a basis of preservation by salting and drying meat for future consumption.	<i>Buy, cut up and price round steak, large chuck roast, pork chop and short ribs:</i> To understand the importance of cost per serving.
<i>Identify four species of meat:</i> To learn to visually identify fresh or cured beef, pork, lamb and veal muscle.	<i>Cure meat:</i> To understand the concepts of curing a fresh product for flavor, color and taste changes in meat.	<i>BRT Roast:</i> To acquire knife and merchandising skills.
<i>Judge meat:</i> To gain an appreciation of quality and quantity differences between carcasses, wholesale and/or retail cuts of the same species.	<i>Cook hamburger, shank &amp; steak right &amp; wrong way:</i> To observe how the methods of cooking affect tenderness, juiciness & flavor.	<i>Wrap and store meat:</i> To observe the importance of various wrapping materials, temperatures upon the appearance and refrigerator life of fresh meat.
<i>Meat Animal Evaluation:</i> To gain an appreciation of differences among breeding animals, market animals and meat as well as the relationship among the three.	<i>Bring a label from a package:</i> To understand the meaning and function of label components.	<i>Make Beef Soy Mixture:</i> To observe cost palatability and cooking loss differences between beef soy blends of various proportions of soy.
<i>Visit retail store:</i> To gain an appreciation of the role of a retail store in supplying consumers with meat.	<i>Go to a feedlot:</i> To appreciate the feeding of market animals for purposes of producing meat.	<i>Cook pork to 130, 150, 170 and 185°F:</i> To observe color changes that take place in fresh pork cooked to various temperatures.
	<b>Advanced</b>	<i>"Dynamite":</i> To understand that the color of spoiled meat can be changed to a bright, fresh appearing color by using certain chemicals.
<b>Intermediate</b>		<i>Demo outdoor cookery:</i> To understand the safe and proper techniques in use of outdoor cookery equipment (could culminate in a contest).
<i>Cook low &amp; high fat hamburger (or lamb):</i> To determine visual palatability and cooking characteristics and subsequent CPS differences between ground beef varying in initial fat content.	<i>See, cook &amp; eat high &amp; low fat beef:</i> To determine visual, palatability, cooking characteristics and subsequent CPS differences between identical intact beef muscle varying widely in fat content.	<i>Fry boar meat:</i> To understand that an objectionable odor may result from cooking mature male swine meat.
<i>Make and taste pork sausage:</i> How to grind and season fresh pork trimmings such that flavor and textural change results.	<i>Make and taste pork sausage:</i> How to formulate and produce different types of sausage products.	<i>Smoke Pork:</i> To understand that the flavor and color of meat can be enhanced by smoking.
<i>Store meat by refrigeration and freezing:</i> To observe the effect of two methods of preservation on storage life of meat.	<i>Freeze, thaw and refreeze and thaw meat:</i> To understand that meat can under proper conditions be frozen more than once and still remain wholesome.	<i>Make lard:</i> To understand that pork fat trimmings can be processed into an edible shortening with increased shelf life.
<i>Plan, prepare and eat a meal with and without meat:</i> To experience the problems of planning a nutritionally, equally balanced meal with and without meat as a group.	<i>Plan, prepare and eat a meal with and without meat:</i> To individually plan a meal given the concepts of price, available ingredients and nutritional value.	<i>Change an animal to meat:</i> To acquire skills in the proper conversion of an animal to meat.
<i>Identify four species of meat:</i> To learn to visually identify wholesale or primal cuts and their relationships to the carcass as well as gain an appreciation of the wholesale cut similarities between species.	<i>Identify four species of meat:</i> To learn to visually identify retail cuts of meat according to specie, wholesale cut and to recommended retail name.	<i>Cut up and freeze a carcass:</i> To acquire skill in the proper cutting, wrapping and freezing of cuts derived from a carcass.
<i>Judge meat:</i> To determine and discuss quality and quantity differences between carcasses, wholesale and/or retail cuts of the same species.	<i>Judge meat:</i> To place and give reasons on classes of carcasses, wholesale and/or retail cuts.	<i>Tan a hide (pelt):</i> To make a functional item out of an otherwise non-useful by-product.
<i>Grade meat:</i> To become acquainted with meat grades.	<i>Grade meat:</i> To be able to apply meat grades to carcasses and cuts.	<i>Visit a processing plant:</i> To appreciate modern technology in converting a raw meat product into a manufactured meat product for a specific purpose.
	<i>Meat Animal Evaluation:</i> To learn to evaluate and select breeding animals, evaluate grade & price market animals and carcasses.	<i>Visit a purveyor:</i> To appreciate modern technology in converting a variable size meat product into uniform portions for ultimate HRI trade.
	<i>Visit retail store:</i> To develop an in-depth understanding of retail meat operations including merchandising, pricing and profit.	<i>Visit a restaurant:</i> To appreciate the function of a public or large volume feeding establishment.

From National 4-H Meat Project Development Report, July 1977.