

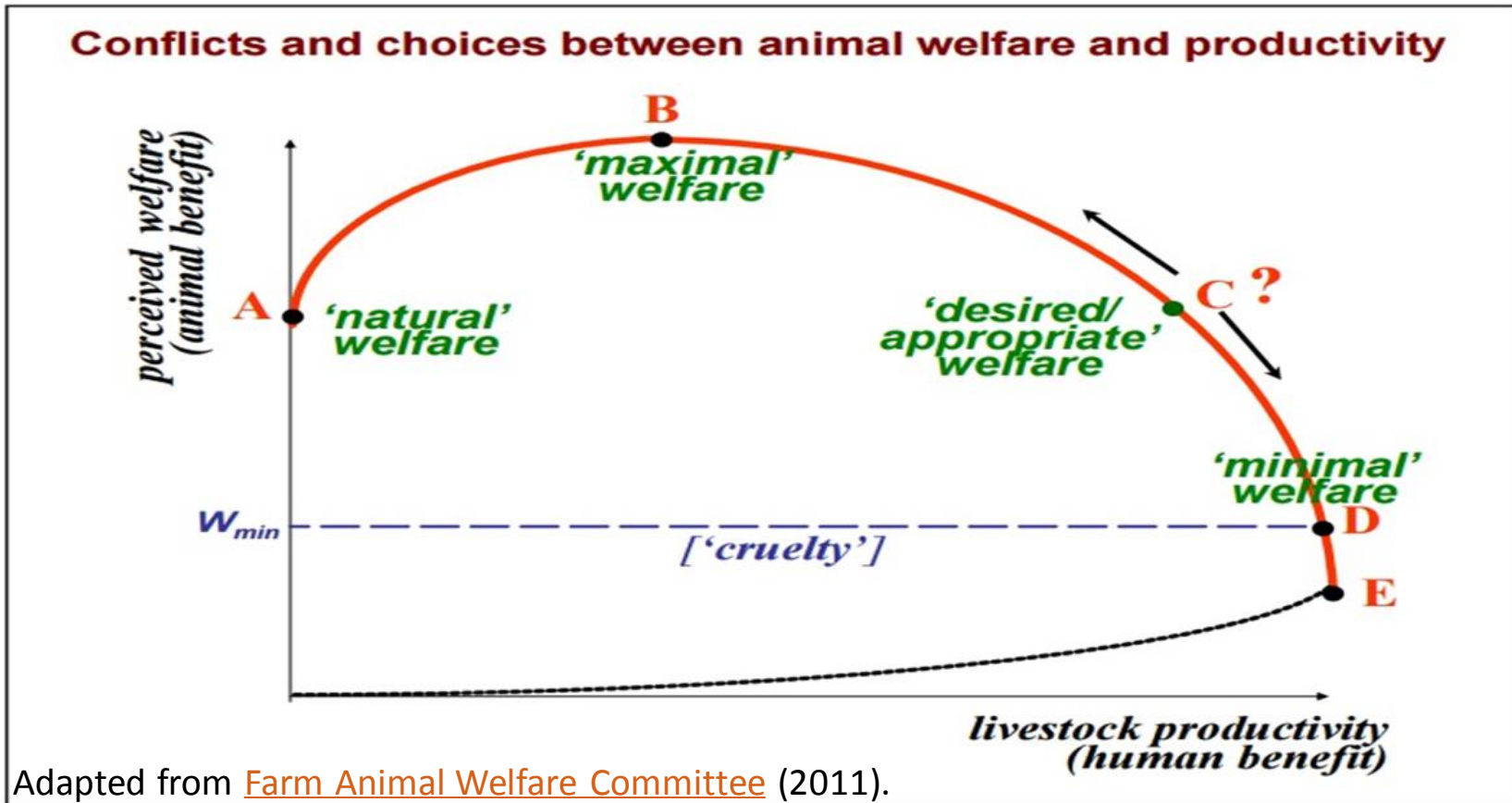
FARM ANIMAL WELFARE IN CANADA

HOW POLITICAL VIEWS, VALUES AND SOCIAL MEDIA CONSUMPTION SHAPE PUBLIC OPINION



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CONCEPTUAL BACKDROP – WELFARE PRODUCTIVITY FRONTIER



- Possible conflict between productivity and farm animal welfare (Austin et al. 2005)
- Sustainable intensification? (Godfray/Garnett 2014)

BACKGROUND

- Agriculture under attack on quality, safety and environmental impact (Bonny 2000)
- Growing gap between rural production agriculture and urban populations
 - Poor public knowledge and understanding of production agriculture (Harper/Henson 2001)
 - Trust is ↓ and ambivalence ↑ towards farming (Boogaard et al. 2006)
 - Yet, growing interest in agricultural process attributes (Solomon et al. 2012)

“How was it produced?” *“Where does it come from?”* *“Who made it?”*

- Consumers prone to believe expertly crafted media campaigns often aimed at fostering concerns, suspicion (Croney/Anthony 2010)

LITERATURE

- Consumers concerned, express WTP for FAW interventions (Norwood/Lusk 2011, Lagerkvist/Hess 2011)
- But sales of FAW friendly meat low (EC 2007) → Attitude behaviour gap
- In Canada: Uzea et al. (2011), Spooner (2013) indicate growing preference for FAW differentiated products
- Evidence regarding subjective factors underlying differences in FAW behavioural intention is scarce (Bennett/Blaney 2003, Lassen et al. 2006):
 - Important to understand underpinning ethics (Kendall et al. 2006)
 - What moral, psychological, socio-economic reasons form basis of public concern (Croney et al. 2012)
 - Need to facilitate understanding of citizen vs consumer behaviour (Clark et al. 2017)

RESEARCH OBJECTIVES

- Can psychometric factors such as perceptions, beliefs, attitudes, values or knowledge of agriculture explain individual's meat product choice decisions in the context of FAW concerns?

Specifically...

“Compassion by the pound”? Are biocentrism and altruism behind the FAW topic?

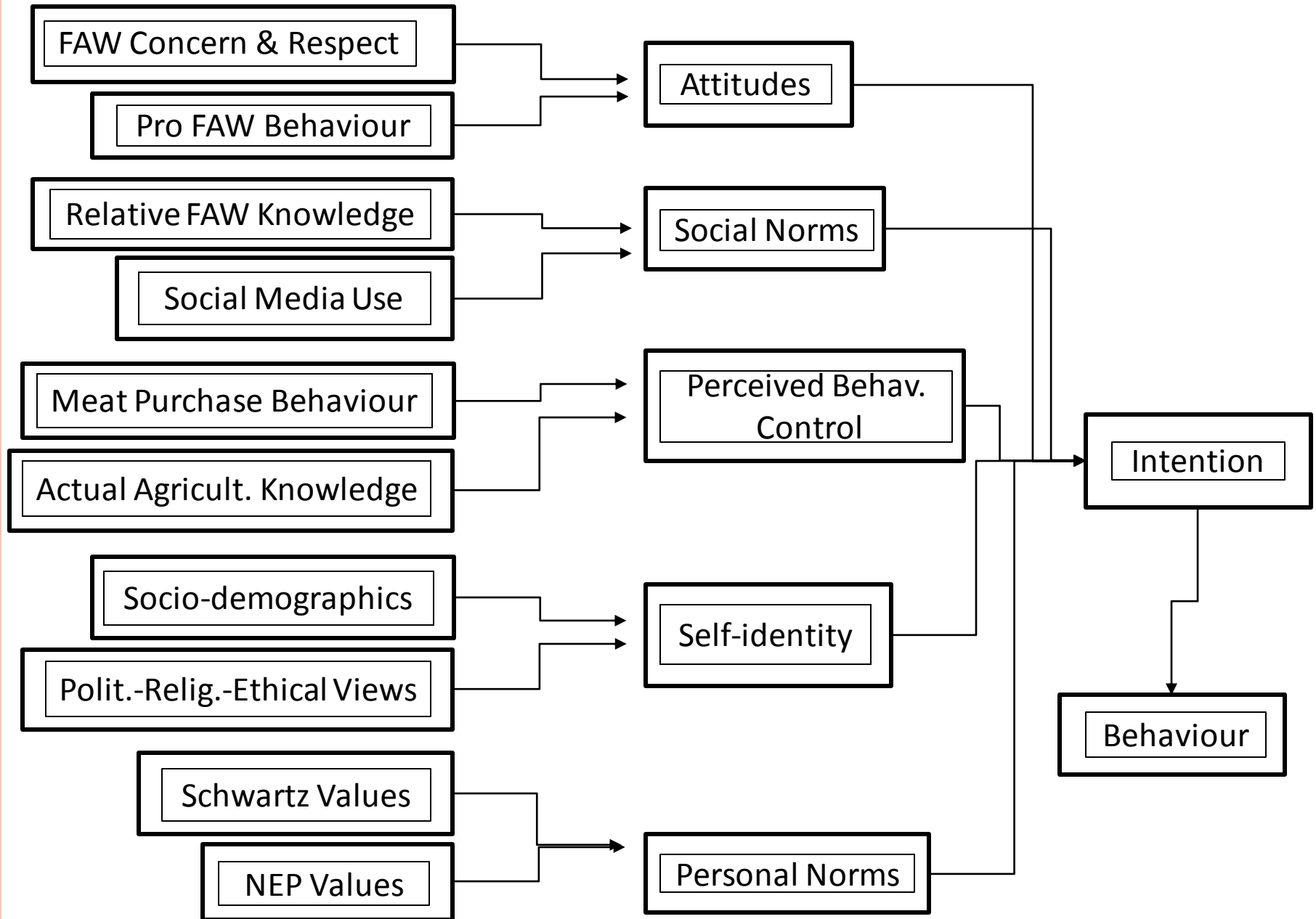
- Can we quantify overall FAW \leftrightarrow Meat behaviour decision process using TPB?
- What is the position of meat consumers versus vegetarians?
 - Is there are consumer – citizen dichotomy?
- . . .

DATA

- National representative survey (N = 1600) English-speaking Canadians (> 18y)
- Survey categories build around TPB conceptual model
- Embedded Discrete Choice Experiment based on stated meat type preference: Beef (sirloin steak), Pork (chops), Chicken (breast)
- About 40 min. average completion time

Survey Sections	Question Categories
Food Consumption & Retail Meat Purchase	Shopping responsibility, Retailer preference, Meat choice, Label attention & usage
Choice Experiment	Stated preference: Beef sirloin, pork chops, chicken breast Certification labels: Certified Humane, Organic, Both, None No choice option, Retail price points (5)
Farm Animal Welfare	<ul style="list-style-type: none"> • Perceptions of farm animal welfare (in Canada) • Engagement in Animal welfare activities • Farm animal welfare responsibility • Source of (information) farm animal welfare information • Familiarity with certification labels (incl. CH, Organic) • Pet ownership & experience
Farm Experience	<ul style="list-style-type: none"> • Farm residence, farm visitations, ownership • Animal & farm animal care experience • Agricultural employment (involvement)
Agricultural Knowledge	<ul style="list-style-type: none"> • Objective (perceived) agricultural knowledge
Attitudes & Self-identity	<ul style="list-style-type: none"> • Use of social media • Scales: Schwartz values, New Environmental Paradigm • Political, religious, ethical views
Socio-demographics	Gender, Age, HHsize, Citizenship status, Ethnicity, Marital status, Education, Employment, Income

THEORY OF PLANNED BEHAVIOUR MODEL



EXPERIMENTAL DESIGN

Block 1 Scenario one

Alternative	Option 1	Option 2	No option
Meat type			
Certification/Labels	Organic 		
Price \$	10.41lb/22.91kg	15.59lb/34.33 kg	

meat



Canadian Lamb Loin Chops
fresh, 33.05/kg

SAVE UP TO 1⁰⁰/lb
14⁹⁹
/lb



Veal Shank Osso Bucco
Grain Fed, 15.41/kg

SAVE UP TO 1⁰⁰/lb
6⁹⁹
/lb



Pork Side Ribs
center portion removed, super saver size, 8.80/kg

SAVE UP TO 66¢/lb
3⁹⁹
/lb



Beef Finger Meat
fresh, 13.21/kg

SAVE UP TO 1⁰⁰/lb
5⁹⁹
/lb



St. Hubert Pies or Mozzarella Sticks
frozen, 510 - 800 g

SAVE 3⁰⁰
7⁹⁹
each



Pinty's Eat Well Chicken Breasts, Chunks, Strips or Nuggets
frozen, 550 - 810 g

SAVE 2⁰⁰
12⁹⁹
each



Baton Rouge Barbecue Pork Back Ribs
585 g, fully cooked & ready to heat

SAVE 2⁰⁰
9⁹⁹
each

Better food comes from **better sources**



- Raised without antibiotics or added growth hormones
- Product of Canada



Aspen Ridge Blade Steaks
cut from Canadian AAA grade Angus beef, raised without the use of antibiotics or added hormones, certified humane, 17.61/kg

SAVE UP TO 1⁶⁴/lb
7⁹⁹
/lb



DuBreton Pork Loin Chops
raised without the use of antibiotics, Certified Humane, bone in, 13.21/kg

SAVE UP TO 1⁰⁰/lb
5⁹⁹
/lb



SAVE 50¢
5⁴⁹
each



- Cut from the top tier of Canadian AAA Beef
- Aged a minimum of 14 days for maximum tenderness
- Guaranteed to be tender, juicy & flavourful or your money back



SAVE UP TO 1¹¹/lb
6⁹⁹
/lb

Sterling Silver Inside Round Roast
cut from the top tier of Canadian AAA Grade Beef, 15.41/kg



SAVE UP TO 3⁸⁴/lb
10⁹⁹
/lb

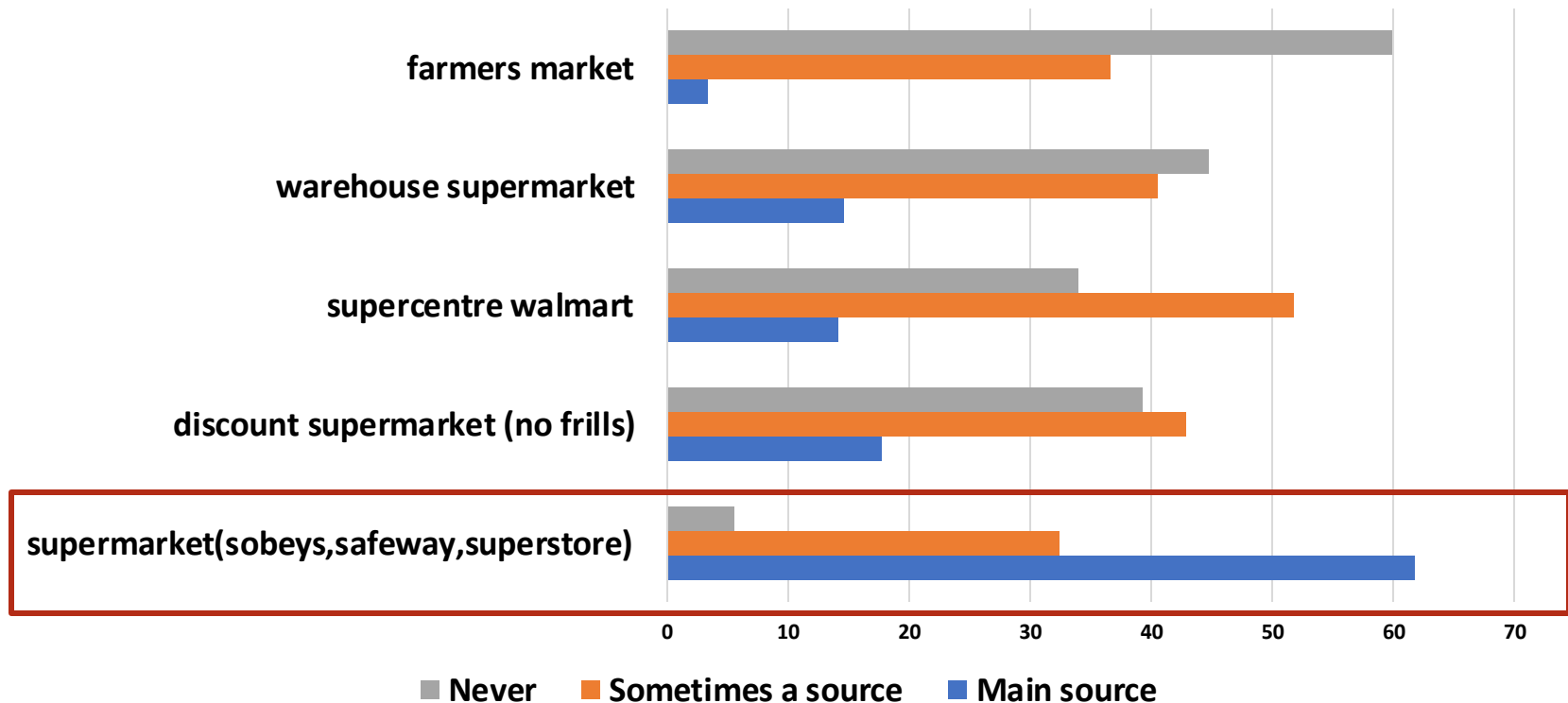
Sterling Silver T-Bone Grilling Steak
super saver size, cut from the top tier of Canadian AAA grade beef, 24.23/kg



DESCRIPTIVE RESULTS – MEAT CONSUMPTION



DESCRIPTIVE RESULTS – STORE CHOICE



DESCRIPTIVE RESULTS – PAST FAW PURCHASE

	Never	Rarely Occasionally	Regularly	Don't know
Frequency	276	487	355	432
Percentage	17.81	31.42	22.90	27.87

N = 1601



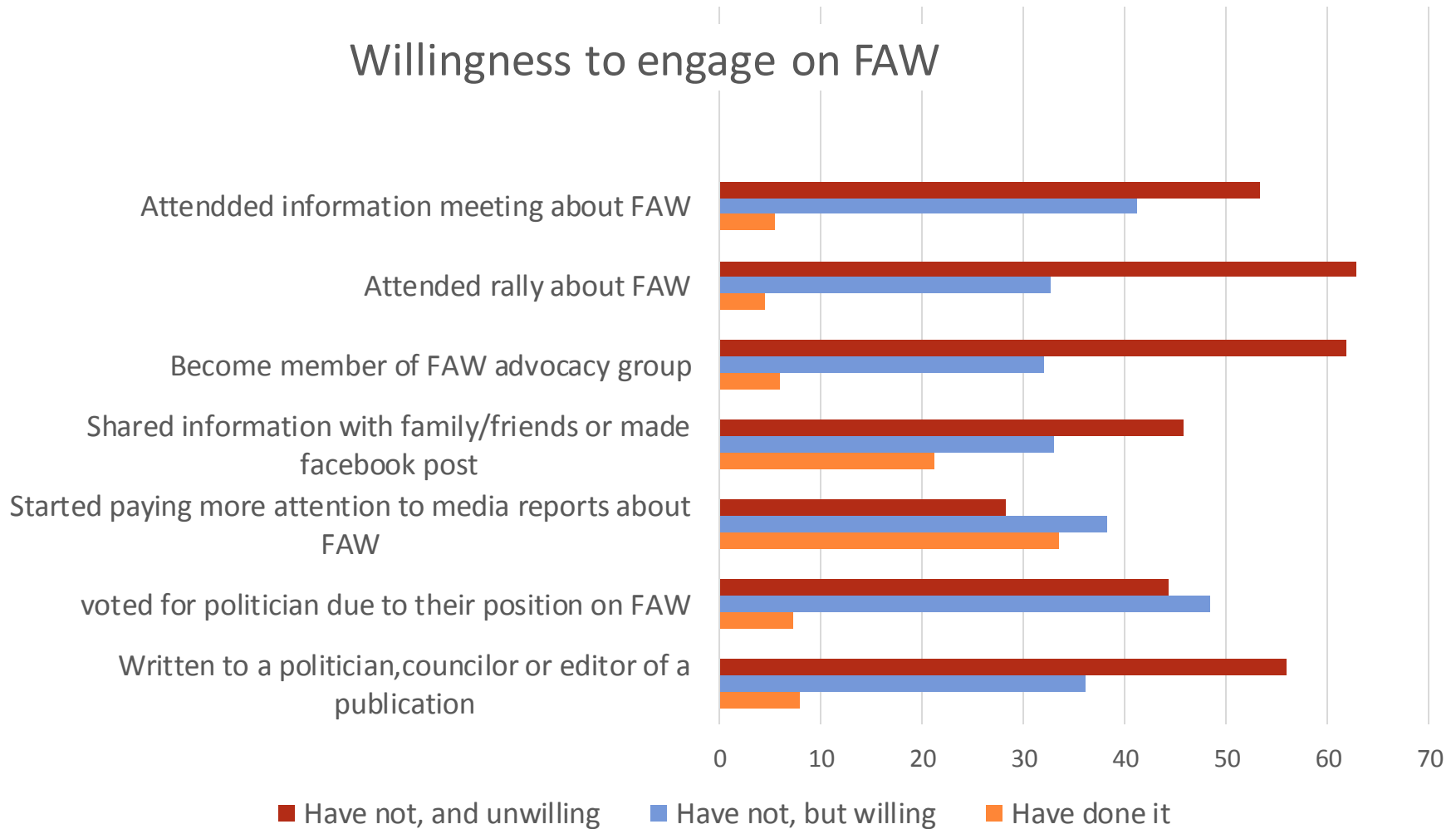
50% of consumers have
little/no experience

DESCRIPTIVE RESULTS – FAW CONCENRS

	Concerned about FAW%	Neutral %	Not concerned about FAW%
Female	77.17	18.68	4.15
Male	57.85	27.15	15
Urban	69.20	19.87	10.93
Sub Urban	65.27	26.20	8.53
Rural	70.06	21.22	8.72
Liberal	76.95	16.27	6.78
Conservative	63.32	22.99	13.98
Born in Canada	68.38	22.10	9.50
Not born in Canada	64.31	26.67	9.02
Currently owns pet	74.24	18.64	7.11
Does not own a pet	58.75	28.64	12.6
Vegetarian	73.93	22.75	3.32
Meat consumer	66.79	22.86	10.35

DESCRIPTIVE RESULTS – FAW CONCERNS

Willingness to engage on FAW



DESCRIPTIVE RESULTS – FAW RESPONSIBILITIES

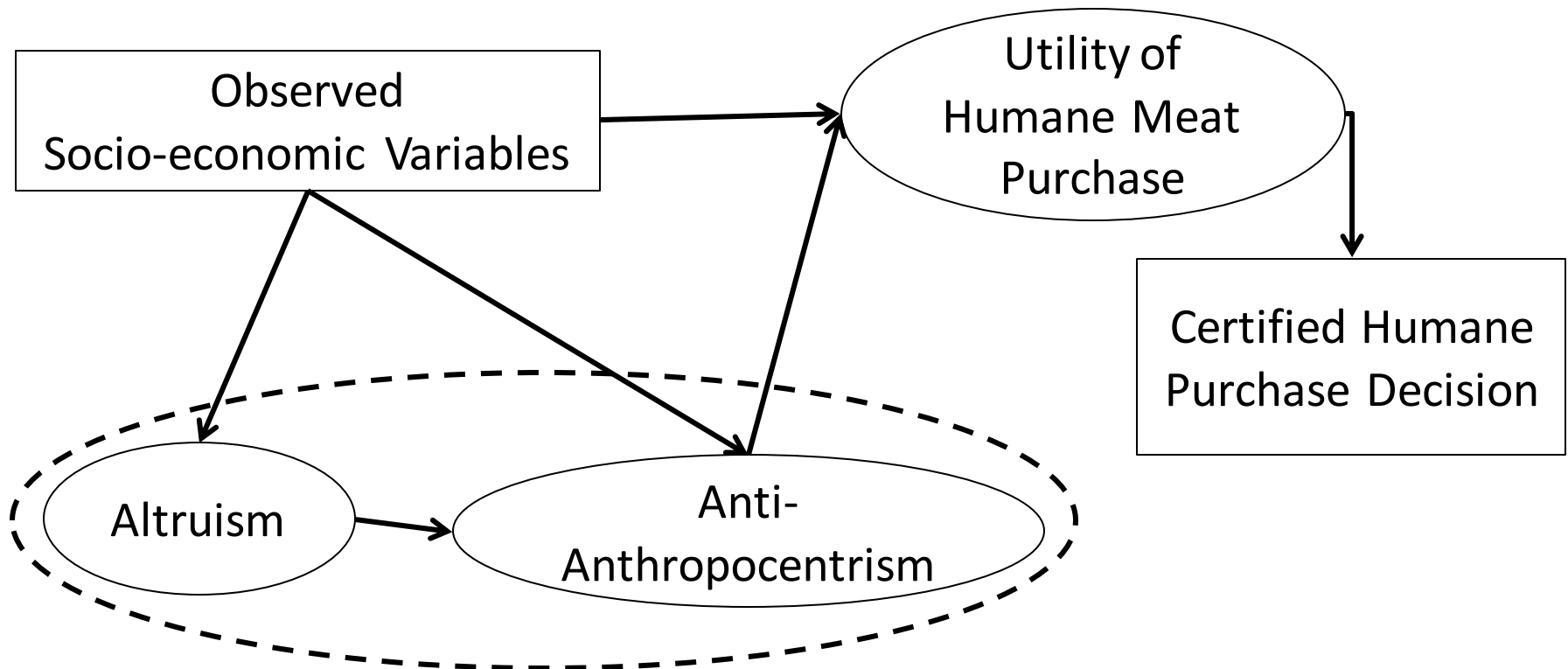
	Strongly	Disagree	Neutral	Agree	Strongly
Government must put higher mandatory welfare standards	2.5	5.56	23.53	35.27	25.78
Government policy should ensure sustainability and farm animal welfare	2.06	3.31	22.97	44.63	27.03
Government must take responsibility for protecting environment	1.81	3.31	19.04	45.51	30.34
Producers must take responsibility for environment	0.69	1.5	16.35	50.37	31.09
If food companies & farmers improve animal welfare the price of meat will increase	1.94	8.93	22.1	37.27	20.54
Concerns for the welfare of farm animals affect my food purchase decisions	6.37	15.61	34.02	26.28	13.67
Canada's agricultural system is sustainable compared to other countries	1.75	6.87	35.77	43.88	11.74
Current level of farm animal welfare in Canada is acceptable	4.99	14.92	33.4	26.03	6.55
Animal stocking densities are too high	1.12	6.37	31.21	26.88	14.86
Farm processes are too mechanized	2.5	13.11	32.65	25.41	11.49
Farm animals are confined all year round	3.87	19.91	26.97	24.53	8.99

DESCRIPTIVE RESULTS – FARM EXPERIENCE

	% of Respondents
I currently live, lived on a farm in the past	16.42
I have visited a farm	71.04
Never visited or lived on	12.55
# of visits	
Once	10.11
Twice	14.94
Three times	7.47
More than three times	67.49

ECONOMETRIC MODELLING APPROACH

- Multiple indicators multiple causes (MIMIC) model (Jöreskog/Goldberger 1975)
- $\Pr(\text{C.H. meat choice}) (0,1) = f(\text{observed traits (e.g. socio-economics) and latent factors (e.g. anti-anthropocentrism)})$
- Generalized structural equation model (SEM)



LATENT VARIABLES

○ Altruism

- Selflessness, concern for the well-being of others (e.g. “Social justice, correcting injustice, care for the weak”)
- Shortened version of Schwartz’s Value Inventory (Stern et al. 1998)

○ Anti-Anthropocentrism

- Rejection, belief that humans have the right to control the environment, nature (e.g. “Plants and animals have as much right as humans to exist”)
- New Ecological Paradigm items (Dunlap et al. 2000)

MEASUREMENT MODEL

RELATING LATENT VARIABLES TO THEIR INDICATORS

Latent Variable	Indicator	Coefficient	S. E.
Altruism ($\alpha = 0.85$)	Alt1	1	0
	Alt2	1.323***	0.154
	Alt3	0.980***	0.100
Anti-Anthropocentrism ($\alpha = 0.70$)	AA1	1	0
	AA2	1.326***	0.161
	AA3	0.794***	0.107
Residual Variance			
Altruism		0.642***	0.103
Anti-Anthropocentrism		1.413***	0.202
***Significant at the 1% level. N=1541			

- ✓ Loadings highly significant, implying high validity of indicators & scales.
- ✓ Ordinal alpha scores imply internal consistency of scales.

Observed Variables	Altruism		Anti-Anthropocentrism		Purchase Frequency	
Variable	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.
Male	-0.536***	0.082	-0.296***	0.063	0.064	0.066
Age	0.015***	0.003	0.001	0.002	-0.008***	0.002
University	-0.146	0.090	-0.118*	0.069	0.008	0.073
Income	-0.001	0.007	-0.001	0.005	0.009	0.006
BC	-0.103	0.097	0.103	0.070	0.115	0.084
Prairies	-0.019	0.096	-0.020	0.068	0.043	0.080
Atlantic	-0.010	0.133	0.068	0.099	-0.011	0.114
Suburban	-0.114	0.082	-0.043	0.060	0.007	0.068
Rural	-0.089	0.105	0.064	0.074	-0.012	0.088
Lived on Farm	-0.002	0.100	-0.030	0.074	-0.189**	0.087
Pet Owner	0.051	0.074	0.290***	0.057	0.145**	0.064
Vegetarian	-0.459***	0.124	-0.173*	0.090	0.274***	0.100
Conservative	-0.052	0.095	-0.203***	0.073	0.074	0.081
Liberal	0.494***	0.088	0.026	0.064	0.154**	0.074
Religious/Spiritual	0.171**	0.082	-0.351***	0.064	0.240***	0.069
Subj. Ethics	0.419***	0.079	0.108*	0.057	0.063	0.065
Subj. Agr. Knowledge	-	-	-	-	0.205***	0.072
Examines Food Labels:						
Often/ Always	-	-	-	-	1.071***	0.114
Sometimes	-	-	-	-	0.580***	0.126
Weekly Purchase	-	-	-	-	0.145**	0.065
Altruism	-	-	0.273***	0.045	0.084**	0.034
Anti-Anthropocentrism	-	-	-	-	0.157***	0.051
R ²	0.156		0.229		0.219	

*, **, *** significant at 10%, 5%, 1% level. N=1541.

	Indirect Effect		Direct Effect	Total Effect	
	Altruism	Anti-Anthro.			
Variable	Coef.	Coef.	Coef.	Coef.	S. E.
Male	-0.045**	-0.046***	0.064	-0.027	0.064
Age	0.001**	0.000	-0.008***	-0.007***	0.002
University	-0.012	-0.018	0.008	-0.023	0.073
Income	0.000	0.000	0.009	0.009	0.006
BC	0.001	0.016	0.115	0.132	0.085
Prairies	0.000	-0.003	0.043	0.040	0.080
Atlantic	0.000	0.011	-0.011	0.000	0.113
Suburban	0.001	-0.007	0.007	0.002	0.069
Rural	0.001	0.010	-0.012	-0.002	0.088
Lived on Farm	0.000	-0.005	-0.189**	-0.194**	0.089
Pet Owner	0.004	0.045***	0.145**	0.194***	0.064
Vegetarian	-0.038**	-0.027*	0.274***	0.208**	0.098
Conservative	-0.004	-0.032**	0.074	0.038	0.081
Liberal	0.041**	0.004	0.154**	0.200***	0.072
Religious/Spiritual	0.014	-0.055***	0.240***	0.199***	0.067
Subj. Ethics	0.035**	0.017	0.063	0.115*	0.064
Subj. Agr. Knowledge	-	-	0.205***	0.205***	0.072
Examines Food Labels H	-	-	1.071***	1.071***	0.114
Examines Food Labels L	-	-	0.580***	0.580***	0.126
Purchases Meat Weekly	-	-	0.145**	0.145**	0.065
Altruism	-	0.273***	0.084**	0.114***	0.032
Anti-Anthropocentrism	-	-	0.157***	0.157***	0.051

WHAT WE LEARN

- Canadians (incl. Vegetarians) are concerned but not engaged.
 - Gov. should... , Producers should ...
- Differing FAW views confirmed along expected dimensions
- Uptake of existing FAW retail niche remains small (\approx 09/2016)
- Results point to group norms or identities forming preferences
 - “Group” = Vegetarian, Religious, Political, Farm seem to outweigh values and attitudes (altruism, anti-anthropocentrism).

MORE LIKELY TO BUY C.H. MEAT...

- Vegetarians.
 - But they are not more altruistic and are less anthropocentric (many sample vegetarians buy meat for HH)
- Religious people. They are more anthropocentric
 - When we control for ethics and altruism.
- Pet owners.
 - Partially explained by their anti-anthropocentrism
- "Know-it-all's" (animal agriculture).
 - They think they are more ethical and are actually more altruistic
- Those who have lived on a farm are less likely!
 - Higher objective knowledge of animal agriculture. But no acknowledgement of flaws in conventional agriculture