

Survey Methodology

Nonresponse in Sample Surveys

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Nonresponse

★ Nonresponse rates

- The percentage of eligible sample cases that are nonrespondents

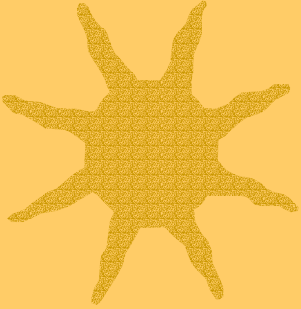
★ Nonresponse bias

- Systematic differences in attributes of respondents and nonrespondents resulting in differences in statistics (e.g. prevalence) between respondents and nonrespondents
- Can impact both descriptive and regression statistics

★ Nonresponse rates correlated loosely with probability of bias in an unknowable way that is different for each survey.

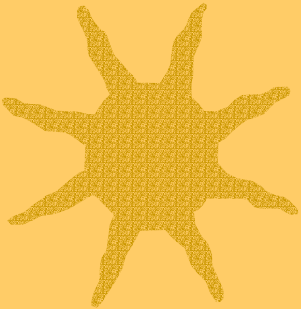


Types of Nonresponse



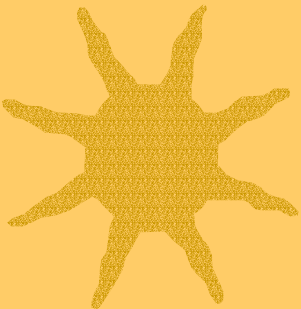
★ Unit Nonresponse

- Total Failure to obtain measurements on sampled units
 - Refusal to do entire survey;
 - Noncontact



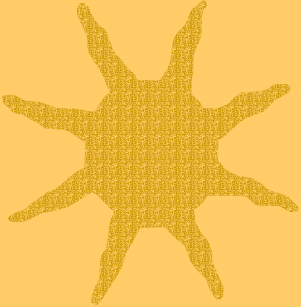
★ Item Nonresponse

- Failure to obtain an answer/information for one item in the survey
 - Refusal to answer questions about income or race/ethnicity





3 *major types of unit nonresponse*

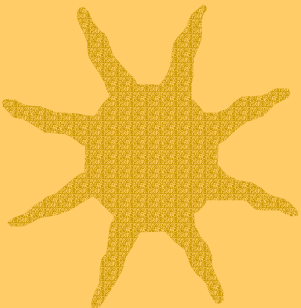
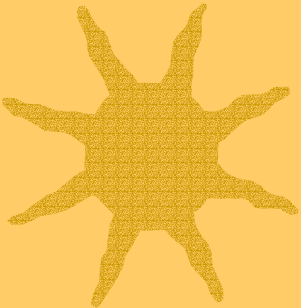


- Failure to deliver the survey request

- Refusal to participate

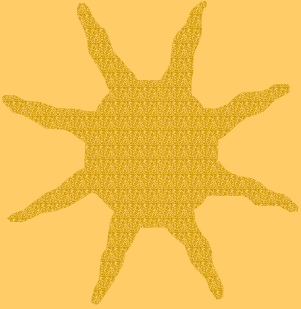
- Inability to participate

e.g. language of respondent \neq language(s) of questionnaire





Noncontact: Access Impediments



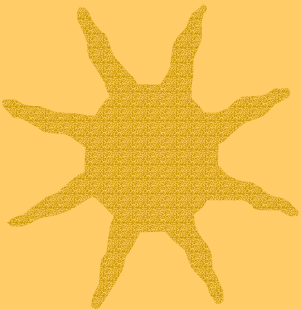
★ Face-to-Face

- Locked apartment buildings/Gated communities/No soliciting or No Trespassing/Guard dogs/Unsafe environments



★ Telephone

- Answering machines/caller ID/Call blocking

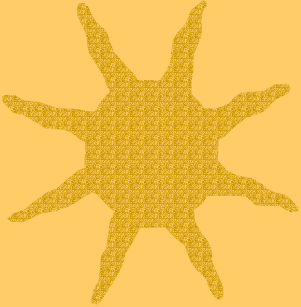


★ Mail/E-mail

- Discarded before being opened.



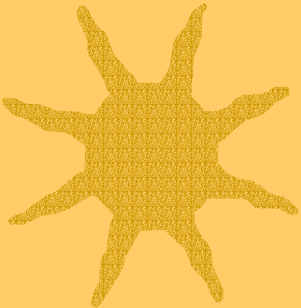
Thinking about unit nonresponse



★ Ignorable (modifiable) causal mechanisms

– Utility example

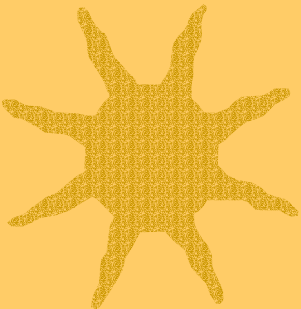
- If bias due to those being at home for survey different from those not at home on key factor of interest, resolve by increasing # attempts, times of day, etc.



★ Nonignorable (nonmodifiable) causal mechanisms

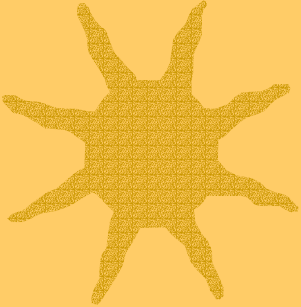
– HIV example:

- People with HIV reluctant to participate because of discrimination/publicity concerns regardless of incentive used.

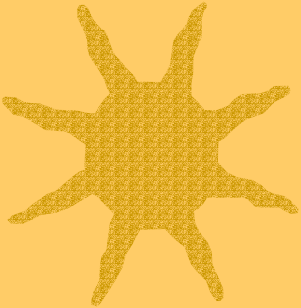




Reasons for Encounters

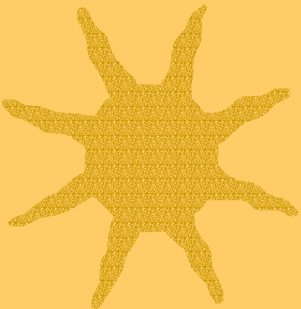


- ★ Sales
- ★ Business/Service
- ★ Fundraising
- ★ Political activities



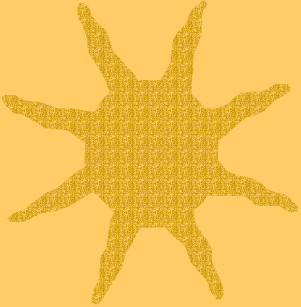
★ Surveys

- Market survey (sales pitch)
- Political (campaign call)
- Academic Research
- Health/Public Health



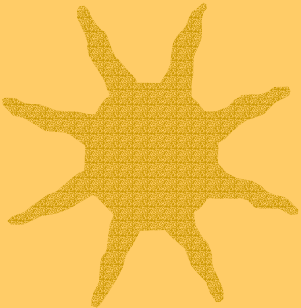


Unit Nonresponse



★ Social environment / area characteristics

- Refusals more likely in urban areas and from 1-person HH.
- Oversurveying of area or population
 - Particularly a problem in EJ communities

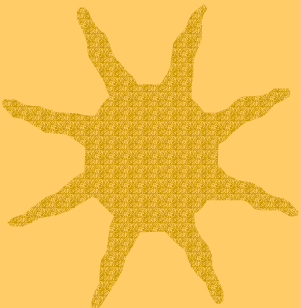


★ Characteristics of selected HH/Person

- Males more likely to refuse

★ Interviewer level

- More experienced interviewers get better results

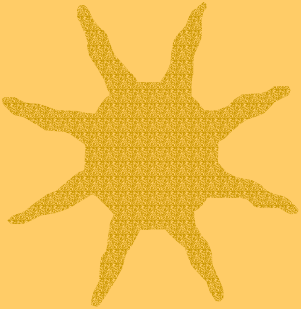


★ Survey Design level

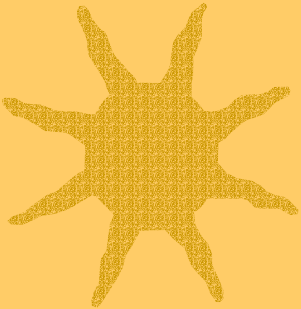
- Incentives / Length / Topic



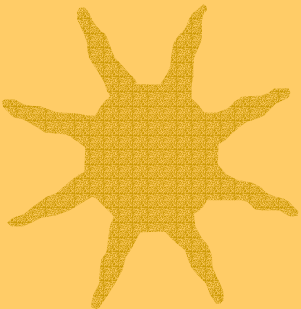
Nonresponse Bias (mean)



- \bar{y}_s = Mean of the entire selected sample
- y_r = Mean of the respondents in the sth sample
- \bar{y}_m = Mean of the nonrespondents in the sth sample



The greater the noncontact rate, the greater the potential bias



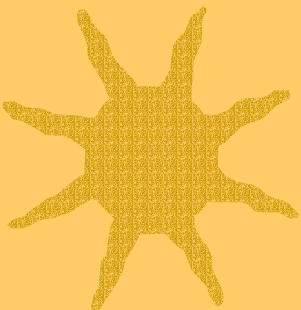
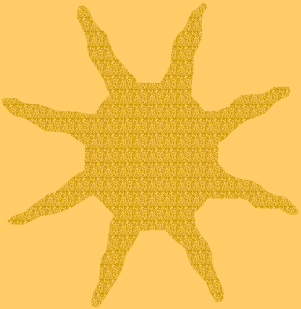
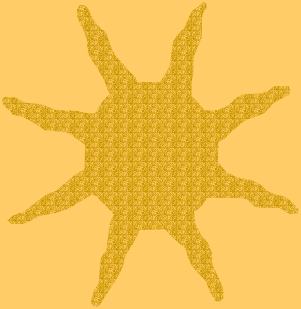
If there is no difference between nonrespondents and respondents on the variable of interest, then no bias



Determining nonresponse rate

$$\frac{m_s}{n_s}$$

- ★ See www.aapor.org for determining response rates for specific designs
- ★ Complications in determining nonresponse rates, if:
 1. Enumeration/screen needed to determine eligibility
 2. Count of elements (e.g. within cluster) unknown at time of sampling
 3. Unequal probability of selection for sample elements – weight question



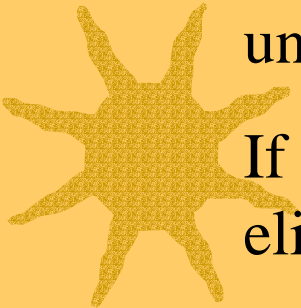


Collecting disposition information to estimate nonresponse rates

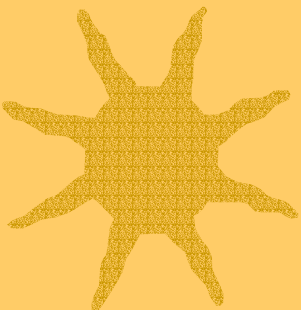


Equation below shows factors that can be used to determine the response rate

Completed interviews, refusers, noncontacts, other eligible, unknown if occupied, unknown if eligible (other)



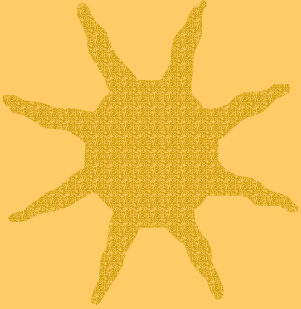
If $e(UH+UO)$ unknown, can assume all ineligible, then all eligible to get range of possible nonresponse.



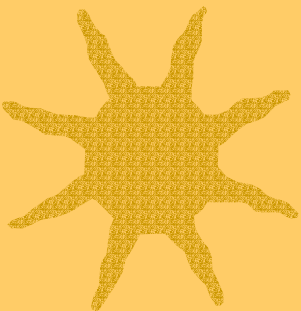
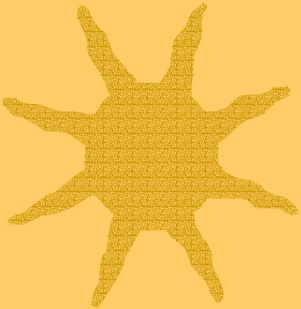
$$\frac{I}{I + R + NC + O + e(UH + UO)}$$



Maximizing Contact Rate

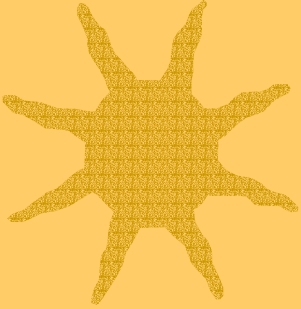


- ★ Increased # of attempts
- ★ Repeated attempts at different times of day
 - Possibilities are different for different modes
- ★ Increase duration of data collection
- ★ Use of several modes for contact
- ★ Translated questionnaires / bilingual interviewers



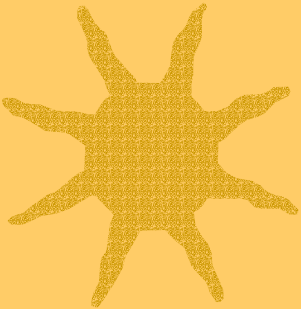


Maximizing Rate

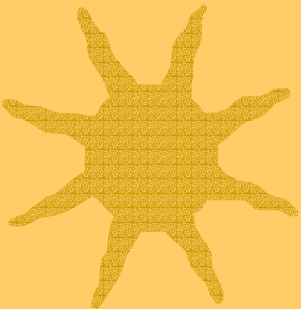


- ★ Decrease # sample units per interviewer workload

 - Alternatively, increase # interviewers

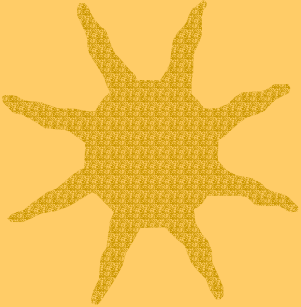


- ★ Use interviewer observations





Reducing refusal rate



- ★ Outreach/prenotification

- Fliers, churches, radio advertising

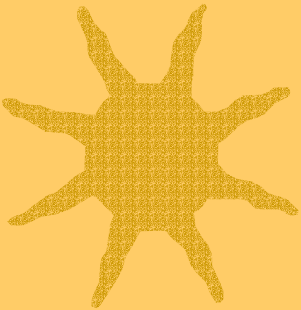
- ★ Sponsorship (gov't, university, company)

- ★ Incentives

- ★ Burden (length, apparent length)

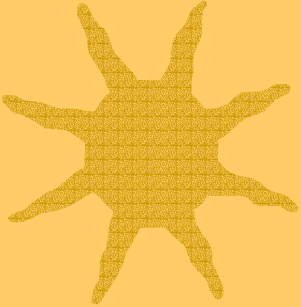
- ★ Flexibility to use alternative HH members

- Proxies, nonrandom selection of adult respondent



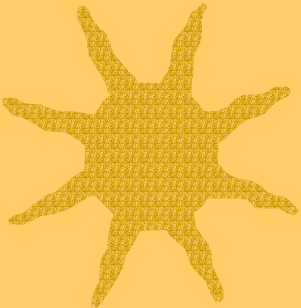


Reducing Refusal Rate



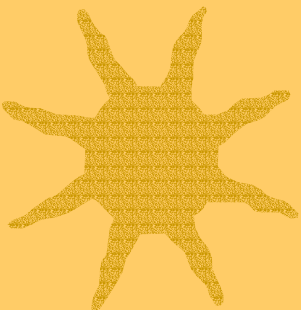
★ Interviewer strategies

- Removing/tailoring scripts
 - Leverage-salience theory
 - Double-edged sword
- Extended interactions with selected person
- Encourage immediate decision if single contact with respondent



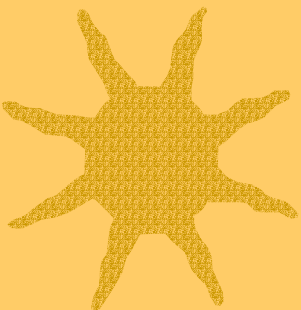
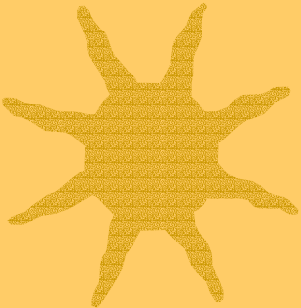
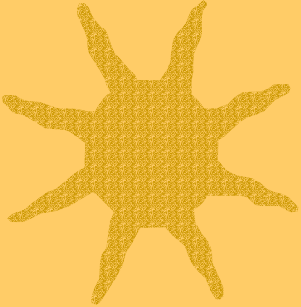
★ Matching” interviewer to household

- Consider age, ethnicity, gender , apparent class





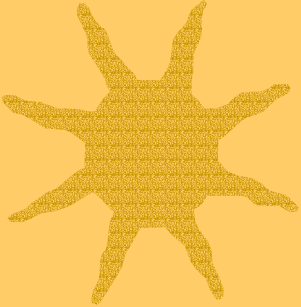
Converting Refusals



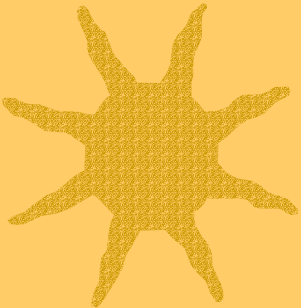
- ★ Interviewer switches (another case of matching)
- ★ Mode switches (mail → telephone → face-2-face)
- ★ Persuasion letter
 - E.g. Buccal cell samples in FACES
- ★ Accounting/adjusting for Nonresponse
 - Two phase sampling – study characteristics of nonrespondents
 - Postsurvey adjustment – upweight groups with lower response rates (assumes missing at random)



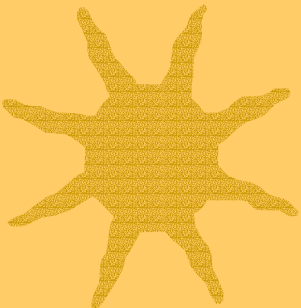
Accounting/adjusting for Nonresponse



- ★ Two phase sampling
 - study characteristics of nonrespondents

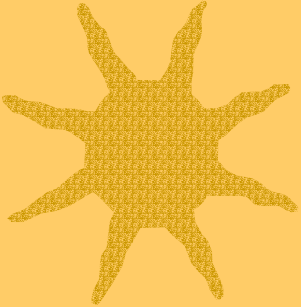


- ★ Postsurvey adjustment
 - upweight groups with lower response rates
 - assumes nonrespondents are missing at random, \therefore does not address bias due to nonweighted characteristics





Strategies to reduce refusal rates



- ★ Name recognition

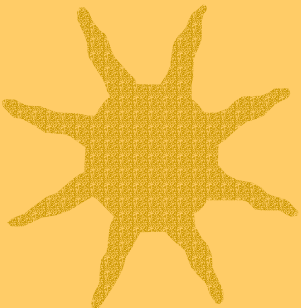
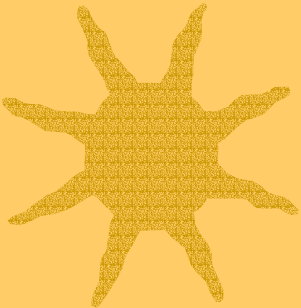
e.g. CDHS, UCSF

- ★ Incentives (in-kind or \$\$\$)

- ★ Converting refusers

- ★ Abandoning scripts

Have interviewers tailor pitch to respondent (leverage/salience research)



- ★ Could work for you or against you (BVHP)

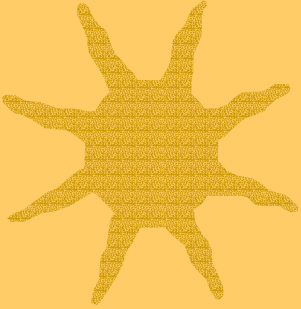
- ★ Credibility: Sales pitches can include “incentives” (you have won...), IRB

- ★ Cost, IRB issues (don't want to harrass people)

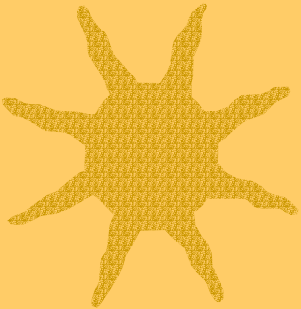
- ★ Scripts standardize the description of the survey; could minimize participant bias



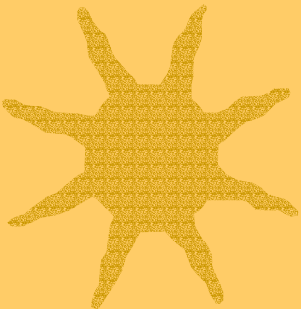
Item Nonresponse



★ Often a problem with income and race questions, also “time in country” questions.

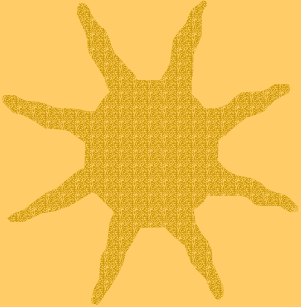


★ If possible, put demographic questions at end of questionnaire and put more sensitive questions toward the end of that section.

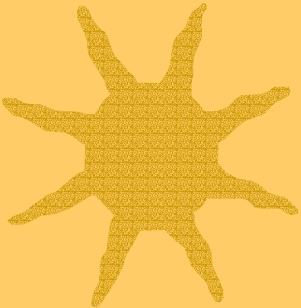




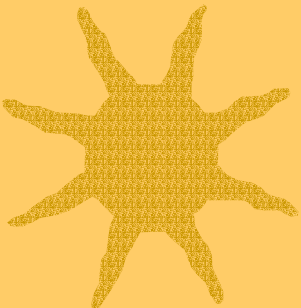
Reasons for Item Nonresponse



- ★ Do not understand intent of the question
 - Particular problem with SAQ survey modes
 - Could be problem with question



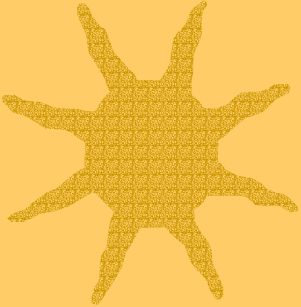
- ★ Failure to retrieve information
 - Can't remember, don't immediately know
 - Probing/prompts/time can help retrieval



- ★ Lack of willingness or motivation to disclose
 - Suspicion – how will this be used, how does this relate to the survey topic?
 - Concern with confidentiality

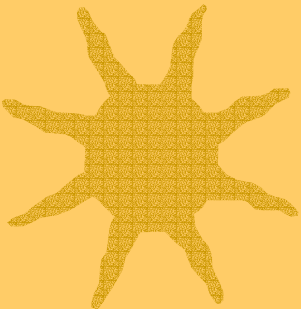
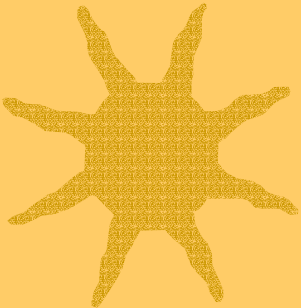


Reducing # DK or Refuse



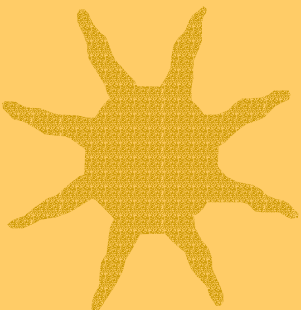
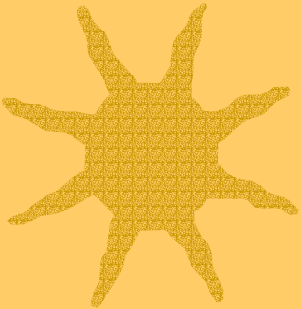
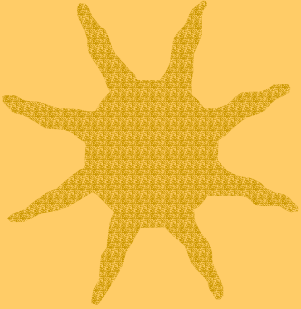
★ Income

- Ask about broad categories
 - E.g. <\$15,000, \$15-35K, \$35-50K, >\$50K
 - IAQ Variant that may work
- Cards with answer choices can be used.
 - Respondent points to answer choice rather than saying it.





Reducing # DK or Refuse



★ Race or Race/Ethnicity

- Self-described race (have them pick as many categories as they would like or describe themselves then have interviewer put down exact phrase + closed-ended answers)
- Recognize/research preferences of race/ethnic groups in study area (e.g. Samoan, BVHP)
- Other category can be very important
- Cards also can be used here.



Assignment

☼ What would be the ideal way to administer your questionnaire/survey

☼ What is the likely mode or modes you will use for your survey

- Given realistic budget, time considerations, goals of the study, level of concern about nonresponse, potential sampling frames

☼ Think about differences between the two approaches in terms of

- cost, external validity, internal validity, achieving project goals