

SAMPLING METHODOLOGIES

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TOPICS OF DISCUSSION

- Two sampling protocols
- Safety
- Accessibility
- Sampling equipment
- Determining sampling intensity
- Uniform primary samples
- Submitting representative composite sample



SAMPLING SEED RICE AND COMMERCIAL RICE

- **AOSA** procedures for seed
 - Assn. of Official Seed Analysts
- Sampling methods endorsed by Assn. of American Seed Control Officials (AASCO) and CA Crop Imp. Assn. (CCIA)
- CDFA uses AOSA rules for taking official samples during truth-in-labeling audits of seed sellers
- All seed companies pulling samples for seed certification must have employees trained by CCIA every 3 years
- <https://ccia.ucdavis.edu/certification/seed-sampler-certification-program>
- **FGIS** rules for grain grading
 - Fed. Grain Inspection Service
- Sampling method required for “official” samples for grain grading
- Official samples only pulled by officials designated by USDA
- Most samples are unofficial submitted samples pulled by rice mills. These samples should attempt to follow the same rules
- <https://www.ams.usda.gov/sites/default/files/media/RiceHB.pdf>

Rice seed companies and mills don't pull 'official' samples, but you should make every effort to pull a representative sample



REPRESENTATIVE SAMPLE

1. Use appropriate sampling equipment.
2. Be able to access the entire seed lot.
3. Take equal portions for each primary sample.
4. Randomly or systematically collect primary samples throughout the seed lot.
5. Obtain a minimum number (intensity) of primary samples to form the composite sample.



SAFETY FIRST

Safety toolbox:

- Goggles
- Gloves
- Hearing protection
- Respirator
- Hard hat
- Work boots – non-slip soles
- Reasonably close-fitting clothes

Be attentive to:

- Chemicals
- Temperatures
- Forklifts
- Others know where you are



SAMPLING EQUIPMENT

- State of the rice lot determines equipment choice
- Bagged
 - Trier that reaches entire length of bag
- Mini-bulk (i.e. bins) and bulk
 - Vertical grain probe, with compartmentalized slots
- Bulk rice in movement/stream sampling
 - Automatic samplers or manual sampling devises, approved by FGIS

▪ FGIS probe specs

Carrier	Length of Probe	Compartments
Barge	12-foot	20
Hopper Car	10- or 12-foot	20
Boxcar	6-foot	12
Truck	5- or 6-foot	11 or 12
Hopper Truck	6-, 8-, or 10-foot	12, 16, or 20



LOT INFO

- To obtain a representative sample, the entire lot must be completely and safely accessible
- Know size of lot; how many containers
- Know information required on respective sample form



SAMPLING INTENSITY...

PRIMARY SAMPLES

(ONLY ADDRESSING MINI-BULK AND BULK, NOT SMALLER CONTAINERS)

AOSA rules (seed)

- Mini-bulk (1-3K lb containers)
 - 1 container, 5 primary samples
 - 2-10 container, 6 primary samples (equal # from each container)
 - 11+, 6 primary samples, each from different container
- Bulk
 - 7 primary samples from uniformly distributed parts of lot

FGIS rules (grading)

- Mini-bulk (500-3000 lbs containers)
 - 1 container, 5 primary samples
 - 2-4, 6 primary samples, equal # from each container
 - 5-9, 1 from each
 - 10-30, at least 10 randomly from different containers
 - 31+, 25% or 10, whichever greater
- Bulk in boxcar, trucks, or trailer
 - Refer to section 2.14 of Rice Inspection Handbook for sampling patterns of each transport unit
- Bulk in storage – 5 locations

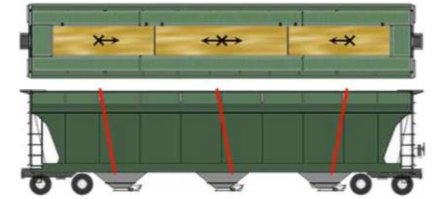


FIGURE 2.1 – HOPPER CAR SAMPLING PATTERN

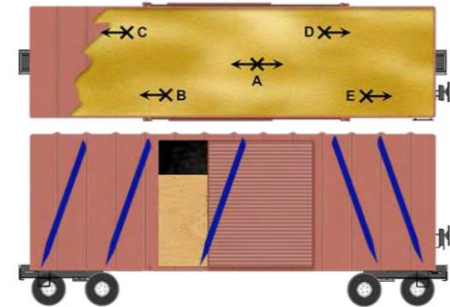


FIGURE 2.2 – BOXCAR, TRUCK, OR TRAILER SAMPLING PATTERN

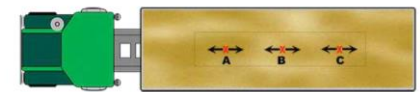


FIGURE 2.3 – HOPPER BOTTOM TRUCK SAMPLING PATTERN



FIGURE 2.4A – DUAL HOPPER-BOTTOM TRAILER SAMPLING PATTERN



FIGURE 2.4B – DUAL HOPPER-BOTTOM TRAILER, SINGLE-SIDE SAMPLING

ENSURING LOT UNIFORMITY VIA PRIMARY SAMPLES

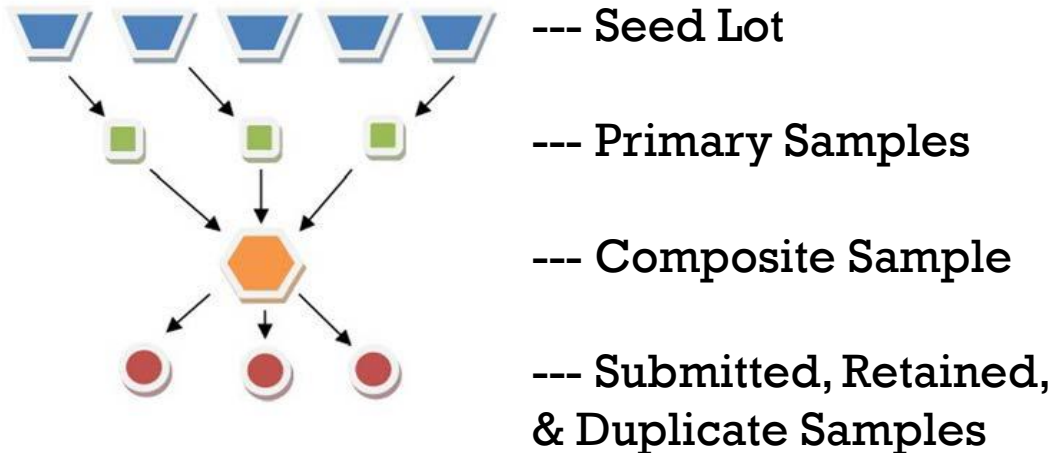
- Examine each primary sample
- Primary samples must be uniform between samples and within samples
- If primary samples are not homogeneous, the lot is not uniform and a representative sample cannot be taken.



SUBMITTING REPRESENTATIVE SAMPLE

1. Combine primary samples
2. Divide and recombine three times to properly blend with a seed divider (i.e. riffle divider)
3. Reduce sample size to appropriate submitted size via successive halving

- Submitted Sample size
 - FGIS
 - 2300 for rough rice
 - 1200 grams for milled rice
 - CCIA
 - 1000 grams, which includes:
 - Germination test - 400 seeds
 - Purity test – 50 grams
 - Noxious exam – 500 gram
 - Red rice rubout – 500 gram



IN SUMMARY

- The goal is to collect representative and accurate seed samples
- AOSA and FGIS sampling protocol both based on same principles
- Rice seed companies and rice mills need to train designated employees to be aware of proper sampling procedures

