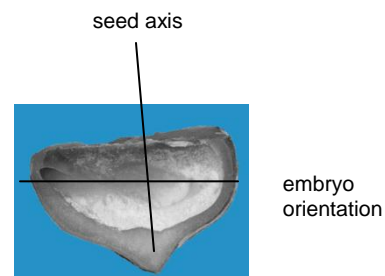
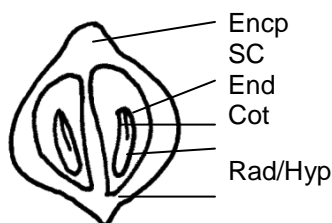


**FAMILY: CORNACEAE**Genus: *Cornus***1. PRECONDITIONING:**

METHODS	TIME (h)	TEMP (°C)
1. Soak in beaker of water	6-18	20-25
2. Remove seeds from endocarp, imbibe in water or between moist media	6-18	20-25

Notes: Method 2: crack endocarp with a vise or hammer to remove seeds. In *Cornus*, two seeds are enclosed by a hard endocarp to form a seed unit.

**Morphology***C. florida**C. racemosa*

for *C. sericea*:  
embryo orientation sometimes  
perpendicular to seed axis

Fig 1 External

Fig 2 Embryo

**2. PREPARATION AND STAINING:**

METHODS	TZ Conc (%)	TIME (h)	TEMP (°C)
1. Cut laterally through the endocarp and cotyledons	1.0	6-18	30-35
2a. Cut longitudinally, off center to expose and remove embryo from endosperm	1.0	6	30-35
2b. Cut longitudinally, off center	1.0	6-8	30-35
2c. Bisect longitudinally, keeping both halves connected.	0.1	4	30-35

Notes: Embryo size and orientation is variable. Dog nail clippers work well for method 1.

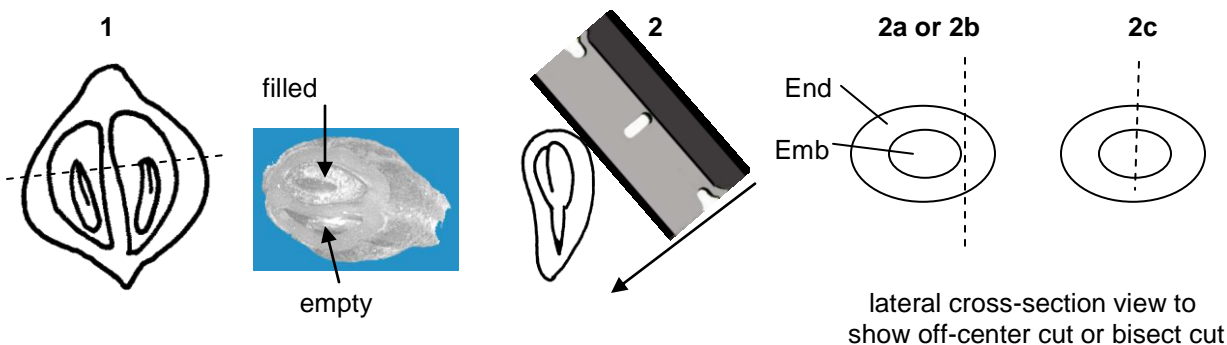


Fig 3 Preparation method

**FAMILY: CORNACEAE**Genus: *Cornus*

**Post-staining notes:** Method 1. Remove embryos from endocarp  
 Method 2a. None (evaluate embryo alone)  
 Method 2b. Cut longitudinally to expose embryo for evaluation  
 Method 2c. Spread halves apart to evaluate

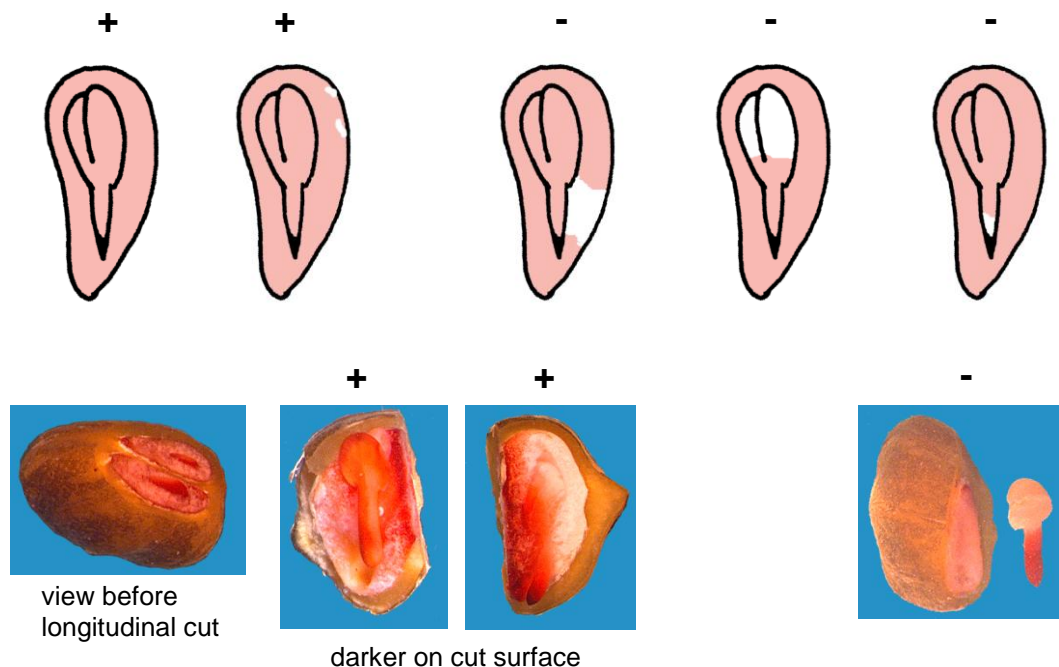
**3. EVALUATION:****VIABLE (NORMAL STAINING)**

- entire embryo completely stained
- endosperm stained (small unstained necroses on periphery acceptable)

**NON-VIABLE (ABNORMAL OR NO STAINING)**

- any part of embryo unstained
- endosperm with more than small unstained necroses on periphery

Notes: The number of “doubles” with two viable seeds must be recorded (see section 15.1.3.3). The amount of endosperm and its importance to evaluation is variable.



Note for *C. sericea*: embryo orientation is variable, sometimes perpendicular to the axis of the seed.

Fig 4 Seed stain evaluation

Drawings: Bill Lanham

Photos: Annette Miller, USDA/ARS NCGRP