Term Name	Term Comments / Description	Related Terms	Comments / Annotations	Status
anthers R1 B73	Stage R1 (early silking) unopened spikelets were collected 8-10 am from the secondary branches of a tassel in which some of the spikelets in the middle of the primary branch were open.	anther, 4.1 pollen development	PO:0006473 anther; PO:0001007 pollen developmental stages	o
cob immature V18 B73	At stage vegetative 18 (V18, 18 extended leaves), the topmost ear shoot (approximately 2.0 cm long) was harvested 8-10 am. The ear stem was not included.	cob, 3.4 late vegetative	Using LP.18 although there may be more leaves visible at this stage, this is close to total number of leaves., PO:0006505 central spike of ear; PO:0007072 18 leaves visible; PO:0007006 IL.00 inflorescence just visible	o
cob pre-pollination R1 B73	At stage R1 (silks emerging from the husk), these tissue samples were collected 8-10 am, on the day of silk emergence. Husks, silks, and ear stem from the topmost earshoot were removed. Middle one third part of the ear was harvested.	cob, 5.2 silking	PO:0007016 4 flowering; PO:0006505 central spike of ear	o
coleoptile 6 day, B73	Six days after sowing, this tissue was collected 8-10 am from greenhouse grown plants. Coleoptiles were harvested from the same plants that were used for collection of 6DAS_GH_Primary Root.	coleoptile, 0.3 coleoptile emergence from seed	PO:0025287 seedling coleoptile; PO:0007045 coleoptile emergence, Request to PO Jun 2011 to upgrade defintion to be similar to that for radicle emergence, regarding position relative to ground, else would have to use the term radicle emergence.	o
embryo, 16 days after pollination B73	Tissues were harvested from middle one third of the ear, 8-10 am.	7.2 milk stage/embryo 2, embryo	PO:0001095 true leaf formation; PO:0007001 FR.01 early stage of fruit ripening; PO:0009009 plant embryo , staging based on endosperm image	o
embryo, 18 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	7.3 early dough stage/embryo 3, embryo	staging based on endosperm not milky (see image), PO:0009009 plant embryo; PO:0007031 FR.02 mid stage of fruit ripening; PO:0001095 true leaf formation	o
embryo, 20 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	7.3 early dough stage/embryo 3, embryo	PO:0007031 FR.02 mid stage of fruit ripening; PO:0009009 plant embryo; PO:0001095 true leaf formation	o
embryo, 22 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	embryo, 7.3 early dough stage/embryo 3	PO:0007031 FR.02 mid stage of fruit ripening; PO:0001095 true leaf formation; PO:0009009 plant embryo	o
embryo, 24 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	embryo, 7.3 early dough stage/embryo 3	PO:0007031 FR.02 mid stage of fruit ripening; PO:0009009 plant embryo; PO:0001095 true leaf formation, staging based on image	o
endosperm, 12 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	7.1 blister stage, endosperm	PO:0007001 FR.01 early stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o
endosperm, 14 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	7.1 blister stage, endosperm	PO:0007001 FR.01 early stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o
endosperm, 16 days after pollination B73	Tissues were harvested 8-10am from middle one third of the ear.	endosperm, 7.2 milk stage/embryo 2	PO:0007001 FR.01 early stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o
endosperm, 18 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	7.3 early dough stage/embryo 3, endosperm	PO:0007031 FR.02 mid stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o
endosperm, 20 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear	7.3 early dough stage/embryo 3, endosperm	PO:0007031 FR.02 mid stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o
endosperm, 22 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	endosperm, 7.3 early dough stage/embryo 3	PO:0007031 FR.02 mid stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o

endosperm, 24 days after pollination B73	Tissues were harvested 8-10 am from middle one third of the ear.	endosperm, 7.3 early dough stage/embryo 3	PO:0007031 FR.02 mid stage of fruit ripening; PO:0009089 endosperm; PO:0007633 endosperm development stages;	o
germinating seed 24h B73	Seeds were soaked in Petri dishes containing distilled water for 12H, allowed to germinate on paper towels for 12H, and immediately frozen in liquid N.	0.1 imbibition, kernel	PO:0009001 kernel; PO:0007022 imbibition	o
husk, innermost R1 B73	Approximately 10 cm from the middle of innermost husk with light yellow color was harvested 8-10 am at stage R1 (early silk emergence)	husk leaf, 5.2 silking	PO:0009054 inflorescence bract; PO:0007026 first flower(s) open	o
husk, innermost R2 B73	Approximately 10 cm from the middle of innermost husk with light green color was harvested 8-10 am at R2 (Blister stage).	husk leaf, 7.1 blister stage	PO:0009054 inflorescence bract; PO:0007001 FR.01 early stage of fruit ripening;	o
husk, outer R2 B73	Approximately 10 cm from the middle of the second husk from outside (to avoid pollen contamination) was sampled at 8-10 am, stage R2 (blister kernel stage).	7.1 blister stage, husk leaf	PO:0009054 inflorescence bract; PO:0007001 FR.01 early stage of fruit ripening;	o
internode, 1st above ground V5 B73	At V5, five fully extended leaves, the stalk was longitudinally cut in half, leaves were removed, and the first elongated internode from both halves was dissected out. These samples were collected at 8-10 am and from same plants used for collection of V5_Shoot Tip.	internode, 2 tassel initiation/early whorl stage	PO:0020142 stem internode; PO:0021004 inflorescence initiation stage; PO:0007063 LP.07 seven leaves visible	o
internode, 1st above ground, V7 B73	At stage vegetative 7 (V7), seven extended leaves, stalk was longitudinally cut in half and the first elongated internode was dissected out from both halves.	3.1 ear initiation/mid-whorl stage, internode	PO:0020142 stem internode; PO:0021004 inflorescence initiation stage; PO:0007101 LP.09 nine leaves visible	o
internode, 4th V9 B73	At stage vegetative 9 (V9), nine extended leaves, leaves were removed and the fourth elongated internode was collected at 8-10 am.	internode, 3.2 late whorl stage	PO:0020142 stem internode; PO:0001083 inflorescence development stages; PO:0007116 LP.11 eleven leaves visible	o
kernel 2 days after pollination B73	At 8-10 am, seeds were shaved off the cob with a razor blade and included some cob and silk tissue.	kernel, 6.1 dilatory	PO:0009001 fruit; PO:0001180 B proembryo stage; PO:0007042 fruit formation	o
kernel 4 days after pollination B73	At 8-10 am, seeds were shaved off the cob with a razor blade and included some cob and silk tissue.	kernel, 6.1 dilatory	PO:0009001 fruit; PO:0001180 B proembryo stage; PO:0007042 fruit formation	o
kernel 6 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	6.2 exponential, kernel	PO:0009001 fruit; PO:0001180 B proembryo stage; PO:0007042 fruit formation; PO:0007633 endosperm development stages	o
kernel 8 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	6.2 exponential, kernel	PO:0009001 fruit; PO:0001180 B proembryo stage; PO:0007042 fruit formation; PO:0007633 endosperm development stages	o
kernel, 10 days afer pollination B73	Tissues were harvested from middle one third of the ear, at 8-10 am.	6.2 exponential, kernel	PO:0009001 fruit; PO:0001180 B proembryo stage; PO:0007042 fruit formation; PO:0007633 endosperm development stages	o
kernel, 12 days after pollination B73	Tissues were harvested at 8-10 am from middle one third of the ear.	7.1 blister stage, kernel	PO:0009001 fruit; PO:0007001 FR.01 early stage of fruit ripening; PO:0007633 endosperm development stages; PO:0001094 coleoptilar stage	o
kernel, 14 days after pollination B73	Tissues were harvested from middle one third of the ear, at 8-10 am.	kernel, 7.1 blister stage	PO:0009001 fruit; PO:0007001 FR.01 early stage of fruit ripening; PO:0007633 endosperm development stages; PO:0001095 true leaf formation	o
kernel, 16 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	kernel, 7.2 milk stage/embryo 2	PO:0009001 fruit; PO:0007001 FR.01 early stage of fruit ripening; PO:0007633 endosperm development stages; PO:0001095 true leaf formation	o
kernel, 18 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	7.3 early dough stage/embryo 3, kernel	PO:0009001 fruit; PO:0007031 FR.02 mid stage of fruit ripening; PO:0007633 endosperm development stages; PO:0001095 true leaf formation	o

kernel, 20 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	7.3 early dough stage/embryo 3, kernel		o
kernel, 22 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	7.3 early dough stage/embryo 3, kernel	PO:0009001 fruit; PO:0007031 FR.02 mid stage of fruit ripening; PO:0007633 endosperm development stages; PO:0001095 true leaf formation	o
kernel, 24 days after pollination B73	Tissues were harvested from middle one third of the ear at 8-10 am.	7.3 early dough stage/embryo 3, kernel	PO:0009001 fruit; PO:0007031 FR.02 mid stage of fruit ripening; PO:0007633 endosperm development stages; PO:0001095 true leaf formation	o
leaf 1st with sheath V3 B73	First whole leaf and sheath at vegetative stage 3 (V3, 3 leaves fully extended), sampled at 8-10 am.	leaf fully expanded, 1.3 3 leaves, juvenile leaf	PO:0006339 juvenile leaf; PO:0025034 leaf; PO:0001053 3 leaf fully expanded; PO:0007065 LP.05 5 leaves visible	o
leaf 8th V9 B73	A section of the 8th leaf at vegetative stage V9 (9 fully extended leaves) corresponding to approximately 10 cm of stalk, cut at 8-10 am, starting approximately 3 cm below the leaf-sheath junction of the eighth leaf and going upwards.	leaf fully expanded, 3.2 late whorl stage, leaf	PO:0006340 adult leaf; PO:0025034 leaf; PO:0001053 3 leaf fully expanded; PO:0007116 LP.11 11 leaves visible	o
leaf base of expanding leaf V5 B73	Approximately 5.0 cm pale/light yellow basal part including undifferentiated sheath of the stage-2 leaf was harvested from vegetative stage 5 (V5, five leaves fully extended), 8-10 am.	leaf expansion, pre-ligule, leaf, 2 tassel initiation/early whorl stage	PO:0020040 leaf base; PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0007063 LP.07 7 leaves visible	o
leaf base of expanding leaf V7 B73	Approximately 5.0 cm pale/light yellow basal part including undifferentiated sheath of the stage-2 (rapid expansion) leaf was harvested at 8-10 am, at stage vegetative 7 (V7, 7 leaves fully extended)	leaf, 3.1 ear initiation/mid-whorl stage, leaf expansion, pre-ligule	PO:0020040 leaf base; PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0007101 LP.09 nine leaves visible	o
leaf expanding V3 B73	At vegetative stage 3 (V3, 3 leaves fully extended), sampled the entire top-most leaf at 8-10 am. This is stage-2 of leaf development, characterized by rapid leaf blade growth and differentiation and very little sheath growth (Sylvester, A.W. et al. 1990, Development 110:985-1000). Leaves at this stages had green tip and yellow base which included the undifferentiated sheath.	1.3 3 leaves, leaf expansion, pre-ligule, juvenile leaf	Image shows this is likely not quite V3, as ligule not evident on the 3rd leaf to emerge, PO:0006339 juvenile leaf; PO:0025034 leaf; PO:0007065 LP.05 5 leaves visible; PO:0001052 2 leaf expansion stage	o
leaf tip expanding V7 B73	Approximately 5.0 cm tip of the stage-2 (rapid leaf expansion) leaf with visible chloroplast differentiation was harvested from vegetative 7 stage (V7, 7 leaves fully extended), at 8-10 am.	leaf expansion, pre-ligule, 2 tassel initiation/early whorl stage, leaf	PO:0025142 leaf tip; PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0007101 LP.09 nine leaves visible	o
leaf tip expanding leaf V5 B73	Approximately 5.0 cm tip of the stage-2 leaf with visible chloroplast differentiation was harvested at vegetative stage 5 (V5, 5 leaves fully extended), at 8-10 am.	2 tassel initiation/early whorl stage, leaf, leaf expansion, pre-ligule	PO:0025142 leaf tip; PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0007063 LP.07 7 leaves visible	o
leaf, 11th V9 B73	Collected at stage V9 (9 leaves fully extended) at 8-10 am, from an approximately 10 cm section of the stalk, cut starting approximately 3 cm below the leaf-sheath junction of the eighth leaf and going upwards. The 11th leaf had slight green pigmentation of the base, and undifferentiated sheath.	leaf, 3.2 late whorl stage, leaf expansion, pre-ligule	image shows that the ligule of the 10th leaf is well-formed, even if buried; the 11th leaf does not yet have evidence of a ligule, PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0007116 LP.11 eleven leaves visible	o
leaf, 13th R2 B73	Approximately 10 cm section of the base of thirteenth leaf (excluding sheath) was harvested at stage R2, 10-14 days after silk emergence and 8-10 am.	leaf, 7.1 blister stage	PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001053 3 leaf fully expanded; PO:0020040 leaf base; PO:0007001 FR.01 early stage of fruit ripening	o
leaf, 13th V9 B73	This tissue contains some undifferentiated sheath and was collected at 8-10 am from an approximately 10 cm section of the stalk, cut starting approximately 3 cm below the leaf-sheath junction of the eighth leaf and going upward from stage V9 (9 leaves fully extended) plants.	3.2 late whorl stage, leaf, leaf expansion, pre-ligule	PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0020040 leaf base; PO:0007116 LP.11 11 leaves visible	o

leaf, 13th VT B73	Approximately 10 cm section of the base of thirteenth leaf (excluding sheath) was harvested 8-10 am at the Vegetative Tasseling (VT) stage, last branch of tassel fully emerged.	leaf fully expanded, leaf, 3.4 late vegetative	PO:0020040 leaf base; PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001053 3 leaf fully expanded; PO:0007003 IL.03 full inflorescence length reached (in case of tassel fully emerged, but not ear); PO:0007072 LP.18 eighteen leaves visible	o
leaf, 17th and above immature V9 B73	Immature yellow leaves (17th leaf and above), which likely also included undifferentiated sheaths, were collected at stage V9 (9 leaves fully extended), at 8-10 am, from an approximately 10 cm section of the stalk, starting approximately 3 cm below the leaf-sheath junction of the eighth leaf and going upwards.	leaf expansion, pre-ligule, leaf, 3.2 late whorl stage	PO:0006340 adult leaf; PO:0009025 vascular leaf; PO:0001052 2 leaf expansion stage; PO:0007116 LP.11 eleven leaves visible	o
leaves V1 B73	All the leaves including two outer green leaves and the inside immature leaves were pooled, 8-10 am, at Vegetative Stage 1 (V1, one leaf fully extended).	1.2 1 leaf, juvenile leaf	PO:0006339 juvenile leaf; PO:0009025 vascular leaf; PO:0001052 2 leaf expansion stage; PO:0001053 3 leaf fully expanded; PO:0007106 LP.03 3 leaves visible	o
pericarp, 18 days after pollination B73	Tissues were harvested from middle one third of the ear.	pericarp, 7.3 early dough stage/embryo 3	PO:0009084 pericarp; PO:0007001 FR.01 early stage of fruit ripening	o
root primary V1 B73	Vegetative 1 (V1), first leaf is fully extended at this stage. This tissue was collected from greenhouse-grown plants at 8-10 am.	1.2 1 leaf, primary root	PO:0020127 primary root; PO:0007106 LP.03 3 leaves visible	o
root primary 6 days after sowing B73	This tissue was collected from greenhouse-grown plants. Samples were collected before coleoptiles emerged from the soil surface, at 8-10 am.	primary root, 0.2 radicle emergence from seed	PO:0020127 primary root; PO:0007015 radical emergence	o
root primary vegetative emergence VE B73	Coleoptile barely emerges from the soil surface; this tissue was collected from greenhouse-grown plants at 8-10 am.	0.3 coleoptile emergence from seed, primary root	PO:0020127 primary root; PO:0007112 1 main shoot growth	o
shoot apical meristem and stem V1 B73	The SAM was dissected out at 8-10 am with naked eye and included the stem tissues above the nodal roots. Likely included some leaf tissue that could not be separated with naked eye.	shoot apical meristem, 1.2 1 leaf	PO:0020148 shoot apical meristem; PO:0020142 stem internode; PO:0007106 LP.03 3 leaves visible	o
shoot apical meristem and stem V3 B73	Vegetative 3 (V3), three fully extended leaves. SAM and stem tissue above nodal roots was collected at 8-10 am. Likely included some leaf tissue that could not be separated with naked eye.	1.3 3 leaves, shoot apical meristem	PO:0020148 shoot apical meristem; PO:0020142 stem internode; PO:0007065 LP.05 5 leaves visible	o
shoot apical meristem and stem V4 B73	At vegetative 4 (V4) with four fully extended leaves, SAM and stem tissue above nodal roots was harvested at 8-10 am. Likely included some leaf tissue that could not be separated with naked eye.	1.3 4 leaves, shoot apical meristem	PO:0020148 shoot apical meristem; PO:0020142 stem internode; PO:0007123 LP.06 6 leaves visible	o
shoot seedling VE B73	All plant parts above the nodal roots were collected, 8-10 am. First leaf visible. VE Vegetative emergence	1.1 seedling emergence, shoot	PO:0006341 primary shoot; PO:0007094 LP.01 one leaf visible	o
shoot tip V5 B73	At stage vegetative 5 (V5), with five fully extended leaves, and at 8-10 am, the stalk was longitudinally dissected in half, leaves were removed, and the shoot tip from both halves was dissected out. Immature leaves and sheaths were included.	2 tassel initiation/early whorl stage, shoot apex	this stage typcially includes the appearance of tassel branch primorida, PO:0000037 shoot apex; PO:0009025 vascular leaf; PO:0006340 adult leaf; PO:0001052 2 leaf expansion stage; PO:0020040 leaf base; PO:0020104 leaf sheath; PO:0007063 LP.07 7 leaves visible	o
silks R1 B73	Stage R1 (early silking) silk was collected from non-pollinated ears, at 8-10 am and approximately on the day of silk emergence. Day of the silk emergence was estimated from neighboring non-sampled plants.	silk, 5.2 silking	PO:0007016 4 flowering; PO:0009074 style	o
tassel immature V13 B73	Approximately 2.0 cm tassel excluding the tassel stalk was harvested at Vegetative 13 (V13, 13 leaves fully extended) and at 8-10 am.	tassel, 3.3 mid-vegetative	PO:0001007 pollen developmental stage; PO:0020126 tassel; ; PO:0007104 LP.15 15 leaves visible	o
tassel meiotic V18 B73	Tassel representing a stage of active meiosis of pollen mother cell was visually selected at vegetative stage 18 (!8 leaves fully extended) and collected at 8-10 am.	tassel, 4.1 pollen development, 3.4 late vegetative	PO:0020126 tassel; PO:0001009 D pollen mother cell meiosis stage; PO:0007072 LP.18 18 leaves visible	o