Post-rainy Season Cultivars and Hybrid Parents

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Abstract This chapter entitled "Post-rainy season cultivars and hybrid parents" gives a focussed description of improved sweet sorghum varieties/restorers, hybrids and female hybrid parents (as per PPVFRA). The coloured picture of the line is provided for easy identification. The genetic variability for all the metric traits is conspicuous. However, some of the qualitative traits like anthocyanin coloration, glume color the differences between the lines are indistinct or trivial. Among the biochemical traits such as sucrose, glucose and fructose, the differences are noteworthy among the cultivars. The poor productivity of tropical sorghums during post-rainy season is attributed to photo-thermo sensitivity.

Keywords Hybrids · Varieties, Female hybrid parents, Pedigree · Post-rainy · Rabi · Quantitative traits · Biomass · Panicle · Grain · Glucose · Fructose · Sucrose · Brix % · Shoot fly

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1 ICSV 700 Salient Features



- 1. Pedigree: (IS $1082 \times SC 108-3$)-1-1-1-1
- 2. Days to 50 % flowering: 81 days
- 3. Plant height (m): 2.0
- 4. Plant girth (mm): 13.2
- 5. Biomass yield (t ha⁻¹): 24.7
- 6. Juice yield (t ha⁻¹): 6.9
- 7. Juice extraction (%): 27.7
- 8. Brix (%): 13.0
- 9. Sugar yield (t ha^{-1}): 0.7
- 10. Grain yield (t ha^{-1}): 2.6
- 11. Sucrose (%): 4.9
- 12. Glucose (%): 1.7
- 13. Fructose (%): 1.0
- 14. pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 11.3
- 16. Tolerance to: Stem borer, Shoot fly, Rust.
- 17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA^a

Traits recorded as per guidelines for sorghum Characteristics			_	ved stic	_			·K	Α"	Remarks
Characteristics				suc vari		ie c)1			measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration		•								Purple
Leaf: midrib colour (5th fully developed leaf)			•							Dull green
Plant: time of panicle emergence (50 % of the plants		•								81
with complete panicle emergence)										
Plant: natural height of foliage up to base of flag leaf										1.8 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Strong
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Medium
Flower with pedicel: length of flower										Medium
Anther: length										Medium
Anther: colour of dry anther										Orange
Glume: color										Red
Plant: total height										2.0 m
Stem: diameter (at lower one-third height of plant) (mm)										13.2
Leaf: length of blade of the third leaf from top including flag leaf (cm)										54.3
Leaf: width of blade of the third leaf from top including flag leaf (cm)										6.9
Panicle: length without peduncle			1							16.6
Panicle: length of branches (middle third of panicle)			•							6.4
Panicle: density at maturity (ear head compactness)					•					Semi compact
Panicle: shape							•			Symmetric
Neck of panicle: visible length above sheath (cm)										9.8
Glume coverage (%)										67
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										White
Grain: weight of 1000 grains (g)										30.0
Grain: shape in dorsal view										Circular
Grain: shape in profile view										Circular
Grain: size of mark of germ										Large
Grain: texture of endosperm (in longitudinal section)										50 % corneous
Grain: colour of vitreous albumen										Yellow
Grain: lustre										Medium
Seedling vigor score										Most vigorous
Leaf glossy score										Glossy
Plant aspect score										Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

2 ICSV 25279 Salient Features



- 1. Pedigree: (ICSV 93046 \times SSV 84)-7-2-1-2
- 2. Days to 50 % flowering: 83 days
- 3. Plant height (m): 2.0
- 4. Plant girth (mm): 15.4
- 5. Biomass yield (t ha⁻¹): 25.8
- 6. Juice yield (t ha⁻¹): 9.1
- 7. Juice extraction (%): 35.1
- 8. Brix (%): 16
- 9. Sugar yield (t ha^{-1}): 1.1
- 10. Grain yield (t ha^{-1}): 3.5
- 11. Sucrose (%): 7.4
- 12. Glucose (%): 1.8
- 13. Fructose (%): 1.2
- 14. pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 12.9
- 16. Tolerance to: Anthracnose
- 17. Adaptation: Post-rainy season

Characteristics	Characteristic value of candidate variety									Remarks measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration										Purple
Leaf: midrib colour (5th fully developed leaf)										Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)										83
Plant: natural height of foliage up to base of flag leaf										1.8 m
Flag leaf: extension of discoloration of midrib										Medium
Flag leaf: intensity of green coloration of midrib compared to the blade		\checkmark								Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Strong
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Medium
Flower with pedicel: length of flower										Medium
Anther: length										Short
Anther: colour of dry anther										Orange
Glume: color										Red
Plant: total height										2.0
Stem: diameter (at lower one-third height of plant) (mm)										15.4
Leaf: length of blade of the third leaf from top including flag leaf (cm)										65
Leaf: width of blade of the third leaf from top including flag leaf (cm)										7.8
Panicle: length without peduncle										16.2
Panicle: length of branches (middle third of panicle)										5.7
Panicle: density at maturity (ear head compactness)										Semi compact
Panicle: shape										Symmetric
Neck of panicle: visible length above sheath (cm)										11.4
Glume coverage (%)										48
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										Yellow
Grain: weight of 1000 grains (g)										33.0
Grain: shape in dorsal view										Circular
Grain: shape in profile view										Circular
Grain: size of mark of germ							$\sqrt{}$			Large
Grain: texture of endosperm (in longitudinal section)			,							25 % corneous
Grain: colour of vitreous albumen	,									Yellow
Grain: lustre										Non-lustrous
Seedling vigor score										Most vigorous
Leaf glossy score				,						Glossy
Plant aspect score										Below average

3 ICSV 25284 Salient Features



- 1. Pedigree: (DSV 4 \times SSV 84)-2-5-1-1
- 2. Days to 50 % flowering: 67 days
- 3. Plant height (m): 1.8
- 4. Plant girth (mm): 14.1
- 5. Biomass yield (t ha⁻¹): 29.7
- 6. Juice yield (t ha⁻¹): 7.7
- 7. Juice extraction (%): 25.7
- 8. Brix (%): 14
- 9. Sugar yield (t ha⁻¹): 0.8
- 10. Grain yield (t ha⁻¹): 2.7
- 11. Sucrose (%): 6.9
- 12. Glucose (%): 1.3
- 13. Fructose (%): 1.7
- 14. pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 14.9
- 16. Tolerance to: Aphids.
- 17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA^a

Traits recorded as per guidelines for sorghun	ı as	ap	pro	ved	l by	P	PV	FR	Aa	
Characteristics	Characteristic value of candidate variety								late	Remarks measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration		•								Purple
Leaf: midrib colour (5th fully developed leaf)			•							Dull green
Plant: time of panicle emergence (50 % of the plants		•								72
with complete panicle emergence)					•					
Plant: natural height of foliage up to base of flag leaf										1.6 m
Flag leaf: extension of discoloration of midrib										Medium
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Absent
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Short
Flower with pedicel: length of flower										Medium
Anther: length										Medium
Anther: colour of dry anther										Orange
Glume: color										Black
Plant: total height										1.8 m
Stem: diameter (at lower one-third height of plant) (mm)										14.1
Leaf: length of blade of the third leaf from top including flag leaf (cm)										68.8
Leaf: width of blade of the third leaf from top including										8.7
flag leaf (cm)										
Panicle: length without peduncle										19.1
Panicle: length of branches (middle third of panicle)										6.8
Panicle: density at maturity (ear head compactness)										Semi loose
Panicle: shape										Symmetric
Neck of panicle: visible length above sheath (cm)										12.2
Glume coverage (%)										25
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										White
Grain: weight of 1000 grains (g)			,							41.0
Grain: shape in dorsal view			$\sqrt{}$							Circular
Grain: shape in profile view							,			Circular
Grain: size of mark of germ					,					Large
Grain: texture of endosperm (in longitudinal section)			,							50 % corneous
Grain: colour of vitreous albumen					,					Yellow
Grain: lustre	,									Medium
Seedling vigor score										Most vigorous
Leaf glossy score				,						Glossy
Plant aspect score										Below average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

4 ICSV 93046 Salient Features



- 1. Pedigree: [((IS 1082 \times SC 108 -3)-1-1-1-1) x (((IS 5622 \times CS 3541)-20-1-1-1-1-1 x (UChV2 \times Bulk Y-55)-1-5-1)]-9-3-1-1-1
- 2. Days to 50 % flowering: 83 days
- 3. Plant height (m): 2.0
- 4. Plant girth (mm): 15.3
- 5. Biomass yield (t ha^{-1}): 33.9
- 6. Juice yield (t ha^{-1}): 11.2
- 7. Juice extraction (%): 32.9
- 8. Brix (%): 16
- 9. Sugar yield (t ha^{-1}): 1.3
- 10. Grain yield (t ha⁻¹): 3.1
- 11. Sucrose (%): 5.6
- 12. Glucose (%): 1.0
- 13. Fructose (%): 1.7
- 14 pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 10.5
- 16. Tolerance to: Shoot fly, Anthracnose, Grain mold and Downy mildew.
- 17. Adaptation: Rainy season/Post-rainy season.

Traits recorded as per guidelines for sorghum as approved by PPVFRA^a

Traits recorded as per guidelines for sorghum Characteristics	Ch	arac	teri	stic vari	valı					Remarks measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration		•								Purple
Leaf: midrib colour (5th fully developed leaf)			•							Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)		·								83
Plant: natural height of foliage up to base of flag leaf										1.9 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)									$\sqrt{}$	Strong
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Medium
Flower with pedicel: length of flower										Short
Anther: length										Short
Anther: colour of dry anther										Orange
Glume: color										Straw
Plant: total height										2.0 m
Stem: diameter (at lower one-third height of plant) (mm)										15.3
Leaf: length of blade of the third leaf from top including flag leaf (cm)										52.6
Leaf: width of blade of the third leaf from top including flag leaf (cm)										7
Panicle: length without peduncle			./							15.1
Panicle: length of branches (middle third of panicle)			v		./					6.4
Panicle: density at maturity (ear head compactness)					V		./			Semi compact
Panicle: shape			./				V			Symmetric
Neck of panicle: visible length above sheath (cm)			v		./					10.3
Glume coverage (%)			./		v					42
Shattering			1							Low
Threshability			v		./					Partly threshable
Grain form	./				v					Single
Caryopsis: colour after threshing	1/									White
Grain: weight of 1000 grains (g)	v				./					33.0
Grain: shape in dorsal view			./		v					Circular
Grain: shape in profile view			./							Circular
Grain: size of mark of germ			v		./					Medium
Grain: texture of endosperm (in longitudinal section)					v		./			25 % corneous
Grain: colour of vitreous albumen			./				v			Yellow
Grain: lustre			•		,/					Medium
Seedling vigor score	./				v					Most vigorous
Leaf glossy score	V									Glossy
Plant aspect score	v									Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

5 SSV 74 Salient Features



- 1. Pedigree: Selection from PAB 74 (Sudan; Bred by UAS, Dharwad)
- 2. Days to 50 % flowering: 73 days
- 3. Plant height (m): 1.7
- 4. Plant girth (mm): 12.8
- 5. Biomass yield (t ha^{-1}): 23.2
- 6. Juice yield (t ha⁻¹): 8.4
- 7. Juice extraction (%): 36
- 8. Brix (%): 13
- 9. Sugar yield (t ha⁻¹): 0.8
- 10. Grain yield (t ha^{-1}): 2.7
- 11. Sucrose (%): 5.1
- 12. Glucose (%): 1.5
- 13. Fructose (%): 1.1
- 14. pH of juice: 5.2
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 12.9
- 16. Tolerance to: Aphids, Rust.
- 17. Adaptation: Post-rainy season

Characteristics	Characteristic value of candidate variety									Remarks measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration										Tan
Leaf: midrib colour (5th fully developed leaf)										Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)										73
Plant: natural height of foliage up to base of flag leaf										1.5 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib compared to the blade		\checkmark								Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Absent
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Short
Flower with pedicel: length of flower					$\sqrt{}$					Medium
Anther: length				,						Medium
Anther: colour of dry anther								,		Orange
Glume: color					,					Black
Plant: total height			,							1.7 m
Stem: diameter (at lower one-third height of plant) (mm)										12.8
Leaf: length of blade of the third leaf from top including flag leaf (cm)							\checkmark			65
Leaf: width of blade of the third leaf from top including flag leaf (cm)							\checkmark			7.9
Panicle: length without peduncle										18.8
Panicle: length of branches (middle third of panicle)										7.1
Panicle: density at maturity (ear head compactness)										Semi loose
Panicle: shape										Symmetric
Neck of panicle: visible length above sheath (cm)										8.7
Glume coverage (%)										25
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										White
Grain: weight of 1000 grains (g)										43.0
Grain: shape in dorsal view										Circular
Grain: shape in profile view										Circular
Grain: size of mark of germ										Large
Grain: texture of endosperm (in longitudinal section)										25 % corneous
Grain: colour of vitreous albumen										Yellow
Grain: lustre	,									Medium
Seedling vigor score										Most vigorous
Leaf glossy score			,							Glossy
Plant aspect score										Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

6 SSV 84 Salient Features



- 1. Pedigree: Selection from IS 23568 (Bred by MPKV, Rahuri)
- 2. Days to 50 % flowering: 77 days
- 3. Plant height (m): 1.5
- 4. Plant girth (mm): 13.7
- 5. Biomass yield (t ha⁻¹): 20.9
- 6. Juice yield (t ha⁻¹): 9.1
- 7. Juice extraction (%): 43.4
- 8. Brix (%): 1.0
- 9. Sugar yield (t ha^{-1}): 0.7
- 10. Grain yield (t ha⁻¹): 3.0
- 11. Sucrose (%): 3.7
- 12. Glucose (%): 1.2
- 13. Fructose (%): 1.1
- 14. pH of juice: 5.2
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 16.6
- 16. Tolerance to: Aphids, Shoot fly.
- 17. Adaptation: Post-rainy season

Characteristics	Characteristic value of candidate variety									Remarks measured value	
	1	2	3	4	5	6	7	8	9	etc.	
Seedling: anthocyanin colouration of coleoptile										Purple	
Leaf sheath: anthocyanin colouration										Purple	
Leaf: midrib colour (5th fully developed leaf)										Dull green	
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)										72	
Plant: natural height of foliage up to base of flag leaf										1.3 m	
Flag leaf: extension of discoloration of midrib										Strong	
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color	
Flag leaf: yellow coloration of midrib										Absent	
Glume hair color										Absent	
Lemma: arista formation (awns)										Absent	
Stigma: anthocyanin coloration										Absent	
Stigma: yellow coloration										Medium	
Stigma length (mm)										Short	
Flower with pedicel: length of flower										Medium	
Anther: length										Short	
Anther: colour of dry anther										Orange	
Glume: color					$\sqrt{}$					Red	
Plant: total height										1.5 m	
Stem: diameter (at lower one-third height of plant) (mm)										13.7	
Leaf: length of blade of the third leaf from top including flag leaf (cm)							\checkmark			78.4	
Leaf: width of blade of the third leaf from top including flag leaf (cm)										8.1	
Panicle: length without peduncle										16.1	
Panicle: length of branches (middle third of panicle)										6.1	
Panicle: density at maturity (ear head compactness)										Semi loose	
Panicle: shape										Symmetric	
Neck of panicle: visible length above sheath (cm)										10.2	
Glume coverage (%)										25	
Shattering										Low	
Threshability										Partly threshable	
Grain form										Single	
Caryopsis: colour after threshing										White	
Grain: weight of 1000 grains (g)										32.0	
Grain: shape in dorsal view										Circular	
Grain: shape in profile view										Circular	
Grain: size of mark of germ										Large	
Grain: texture of endosperm (in longitudinal section)										50 % corneous	
Grain: colour of vitreous albumen					,					Yellow	
Grain: lustre										Medium	
Seedling vigor score										Most vigorous	
Leaf glossy score				,						Glossy	
Plant aspect score										Below average	

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

7 RSSV 9 (CSV 19SS) Salient Features



- 1. Pedigree: (RSSV 2 \times SPV 462)-2-1-1 (Bred by MPKV, Rahuri)
- 2. Days to 50 % flowering: 71 days
- 3. Plant height (m): 1.9
- 4. Plant girth (mm): 14.4
- 5. Biomass yield (t ha^{-1}): 27.5
- 6. Juice yield (t ha⁻¹): 10.6
- 7. Juice extraction (%): 38.7
- 8. Brix (%): 14
- 9. Sugar yield (t ha^{-1}): 1.1
- 10. Grain yield (t ha⁻¹): 3.1
- 11. Sucrose (%): 4.1
- 12. Glucose (%): 1.5
- 13. Fructose (%): 1.2
- 14. pH of juice: 5.2
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 16.0
- 16. Tolerance to: Aphids, Shoot fly
- 17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA^a

Traits recorded as per guidelines for sorghum Characteristics	Ch	arac	teri	stic	valı	ie of			Remarks
	ca	ndid	ate	vari	ety				measured value
	1	2	3	4	5	6 7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile									Purple
Leaf sheath: anthocyanin colouration		•							Purple
Leaf: midrib colour (5th fully developed leaf)			•						Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)		V							71
Plant: natural height of foliage up to base of flag leaf									1.8 m
Flag leaf: extension of discoloration of midrib									Medium
Flag leaf: intensity of green coloration of midrib compared to the blade									Same color
Flag leaf: yellow coloration of midrib									Absent
Glume hair color									Absent
Lemma: arista formation (awns)									Strong
Stigma: anthocyanin coloration									Absent
Stigma: yellow coloration									Medium
Stigma length (mm)									Medium
Flower with pedicel: length of flower									Medium
Anther: length									Medium
Anther: colour of dry anther									Orange
Glume: color									Red
Plant: total height						\	/		1.9
Stem: diameter (at lower one-third height of plant) (mm)									14.4
Leaf: length of blade of the third leaf from top including flag leaf (cm)						\	/		63.9
Leaf: width of blade of the third leaf from top including flag leaf (cm)						\	/		7.3
Panicle: length without peduncle									13.7
Panicle: length of branches (middle third of panicle)									5.7
Panicle: density at maturity (ear head compactness)						\	/		Semi compact
Panicle: shape									Symmetric
Neck of panicle: visible length above sheath (cm)									2.0
Glume coverage (%)									33
Shattering									Low
Threshability									Partly threshable
Grain form									Single
Caryopsis: colour after threshing									Yellow
Grain: weight of 1000 grains (g)									33.0
Grain: shape in dorsal view									Circular
Grain: shape in profile view									Circular
Grain: size of mark of germ						\	/		Large
Grain: texture of endosperm (in longitudinal section)									50 % corneous
Grain: colour of vitreous albumen									Yellow
Grain: lustre									Medium
Seedling vigor score									Most vigorous
Leaf glossy score		,							Glossy
Plant aspect score									Good

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

8 ICSB 38 Salient Features



- 1. Pedigree: $[(BT \times 623 \times MR \ 862)B \text{ lines bulk}]$ -5-1-3-5
- 2. Days to 50 % flowering: 69 days
- 3. Plant height (m): 0.9
- 4. Plant girth (mm): 16.0
- 5. Biomass yield (t ha⁻¹): 9.6
- 6. Juice yield (t ha⁻¹): 3.3
- 7. Juice extraction (%): 34.1
- 8. Brix (%): 11
- 9. Sugar yield (t ha^{-1}): 0.3
- 10. Grain yield (t ha⁻¹): 3.8
- 11. Sucrose (%): 5.0
- 12. Glucose (%): 2.0
- 13. Fructose (%): 1.5
- 14. pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 16.9
- 16. Tolerance to: Shoot fly, Stem borer, Rust
- 17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA^a

Traits recorded as per guidelines for sorghun	n as	ap	pro	ved	by	PI	PVI	FRA	
Characteristics				stic v	alue	e of	can	didate	Remarks
		riety	,						measured value etc.
	1	2	3	4	5	6	7	8 9	eic.
Seedling: anthocyanin colouration of coleoptile									Purple
Leaf sheath: anthocyanin colouration									Tan
Leaf: midrib colour (5th fully developed leaf)									Dull green
Plant: time of panicle emergence (50 % of the plants									69
with complete panicle emergence)									
Plant: natural height of foliage up to base of flag leaf									0.7 m
Flag leaf: extension of discoloration of midrib		,							Medium
Flag leaf: intensity of green coloration of midrib compared to the blade									Same color
Flag leaf: yellow coloration of midrib									Absent
Glume hair color									Absent
Lemma: arista formation (awns)									Absent
Stigma: anthocyanin coloration									Absent
Stigma: yellow coloration									Medium
Stigma length (mm)			$\sqrt{}$						Short
Flower with pedicel: length of flower									Short
Anther: length									Short
Anther: colour of dry anther									Orange
Glume: color									Red
Plant: total height									0.9
Stem: diameter (at lower one-third height of plant) (mm)									16.0
Leaf: length of blade of the third leaf from top including flag leaf (cm)									70.3
Leaf: width of blade of the third leaf from top including							./		7.2
flag leaf (cm)							•		
Panicle: length without peduncle									27.7
Panicle: length of branches (middle third of panicle)					Ţ				9.2
Panicle: density at maturity (ear head compactness)					J				Semi loose
Panicle: shape					•				Symmetric
Neck of panicle: visible length above sheath (cm)			•					V	20.3
Glume coverage (%)	1							•	25
Shattering	•								Low
Threshability			•						Partly threshable
Grain form					•				Single
Caryopsis: colour after threshing	Ţ								White
Grain: weight of 1000 grains (g)	•								28.0
Grain: shape in dorsal view					•				Circular
Grain: shape in profile view			V						Circular
Grain: size of mark of germ			٧				、 /		Large
Grain: texture of endosperm (in longitudinal section)							V		25 % corneous
Grain: colour of vitreous albumen							٧		Yellow
Grain: lustre			•		_/				Medium
Seedling vigor score	\				٧				Most vigorous
Leaf glossy score	V								Glossy
Plant aspect score	•			\					Below average
				V					

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

9 ICSB 474 Salient Features



1. Pedigree: (IS 18342 × ICSB 6) 11-1-1-2-2

2. Days to 50 % flowering: 74 days

3. Plant height (m): 1.0

4. Plant girth (mm): 12.6

5. Biomass yield (t ha^{-1}): 17.0

6. Juice yield (t ha^{-1}): 4.2

7. Juice extraction (%): 24.4

8. Brix (%): 11

9. Sugar yield (t ha⁻¹): 0.3

10. Grain yield (t ha⁻¹): 3.3

11. Sucrose (%): 4.7

12. Glucose (%): 1.2

13. Fructose (%): 1.0

14. pH of juice: 5.2

15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 17.4

16. Tolerance to: Stem borer

17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA^a

Characteristic value of candidate variety measured value etc. Characteristic value of candidate variety 1 2 3 4 5 6 7 8 9 9	
Seedling: anthocyanin colouration of coleoptile Leaf sheath: anthocyanin colouration Leaf: midrib colour (5th fully developed leaf) Plant: time of panicle emergence (50 % of the plants with complete panicle emergence) Plant: natural height of foliage up to base of flag leaf Flag leaf: extension of discoloration of midrib Flag leaf: intensity of green coloration of midrib compared to the blade Flag leaf: yellow coloration of midrib Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: anthocyanin coloration Stigma: pellow coloration Stigma: pe	e
Leaf sheath: anthocyanin colouration Leaf: midrib colour (5th fully developed leaf) Plant: time of panicle emergence (50 % of the plants with complete panicle emergence) Plant: natural height of foliage up to base of flag leaf Flag leaf: extension of discoloration of midrib Flag leaf: intensity of green coloration of midrib compared to the blade Flag leaf: yellow coloration of midrib Glume hair color Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: yellow coloration Stigma: yellow coloration Stigma: pellow coloration Absent Stigma: yellow coloration Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) Panicle: length of branches (middle third of panicle)	
Leaf: midrib colour (5th fully developed leaf) Plant: time of panicle emergence (50 % of the plants with complete panicle emergence) Plant: natural height of foliage up to base of flag leaf Flag leaf: extension of discoloration of midrib Flag leaf: intensity of green coloration of midrib Flag leaf: yellow coloration of midrib Glume hair color Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: yellow coloration Stigma: yellow coloration Stigma: yellow coloration The dedium Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Glume: color Compared to the blade Flag leaf: yellow coloration of midrib Absent Absent Absent Strong Strong Absent Medium Medium Stigma length (mm) Flower with pedicel: length of flower Anther: colour of dry anther Orange Glume: color V Straw Plant: total height Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length without peduncle Panicle: length of branches (middle third of panicle) V 74 74 74 74 74 74 74 1.4 m Absent	
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence) Plant: natural height of foliage up to base of flag leaf Flag leaf: extension of discoloration of midrib Flag leaf: intensity of green coloration of midrib compared to the blade Flag leaf: yellow coloration of midrib Clume hair color Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: yellow coloration Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Plant: total height Leaf: length of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Plant: total height without peduncle Panicle: length without peduncle Panicle: length of branches (middle third of panicle)	
with complete panicle emergence) Plant: natural height of foliage up to base of flag leaf Flag leaf: extension of discoloration of midrib Flag leaf: intensity of green coloration of midrib Compared to the blade Flag leaf: yellow coloration of midrib Flag leaf: yellow coloration of wellow yellow coloration of wellow yellow coloration Flag leaf: yellow coloration of wellow yellow yello	
Plant: natural height of foliage up to base of flag leaf Flag leaf: extension of discoloration of midrib Flag leaf: intensity of green coloration of midrib compared to the blade Flag leaf: yellow coloration of midrib Glume hair color Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: yellow coloration Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Anther: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Place in the six of the same of flag leaf (cm) Panicle: length of branches (middle third of panicle) 1.4 m Absent Absent Absent Stabsent Absent Abs	
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Flag leaf: intensity of green coloration of midrib compared to the blade Flag leaf: yellow coloration of midrib Glume hair color Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: yellow coloration Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Y Medium Storng Short Anther: colour of dry anther Short Anther: colour of dry anther V Orange Glume: color Straw Plant: total height Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle)	
compared to the blade Flag leaf: yellow coloration of midrib Glume hair color Lemma: arista formation (awns) Stigma: anthocyanin coloration Stigma: yellow coloration Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Short Anther: colour of dry anther Straw Plant: total height Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle)	
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Stigma: yellow coloration Stigma length (mm) Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Plant: total height Leaf: length of blade of the third leaf from top including flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) Medium M	
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Flower with pedicel: length of flower Anther: length Anther: colour of dry anther Glume: color Plant: total height Straw Plant: total height Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) Short Norr Short Short Anther: elongth Straw 1.0 m 12.6 66.7 66.7 19.4 Panicle: length of branches (middle third of panicle)	
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Anther: colour of dry anther Glume: color Plant: total height Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) Orange Straw 1.0 m 12.6 66.7 7.6 19.4 Panicle: length of branches (middle third of panicle)	
Glume: color Plant: total height Straw Plant: total height Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) Straw 1.0 m 12.6 66.7 7.6 19.4 Panicle: length of branches (middle third of panicle)	
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Stem: diameter (at lower one-third height of plant) (mm) Leaf: length of blade of the third leaf from top including flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) 12.6 66.7 7.6 19.4 Panicle: length of branches (middle third of panicle)	
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flag leaf (cm) Leaf: width of blade of the third leaf from top including flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle) 7.6 19.4 Panicle: length of branches (middle third of panicle)	
flag leaf (cm) Panicle: length without peduncle Panicle: length of branches (middle third of panicle)	
Panicle: length without peduncle $\sqrt{}$ 19.4 Panicle: length of branches (middle third of panicle) $\sqrt{}$ 6.7	
Panicle: length of branches (middle third of panicle) $\sqrt{}$ 6.7	
Panicle: density at maturity (ear head compactness)	
Panicle: shape \(\sqrt{Symmetric}	
Neck of panicle: visible length above sheath (cm) 9.4	
Glume coverage (%) √ 67	
Shattering \(\sqrt{Low} \)	
Threshability , Partly threshab	ole
Grain form \(\sqrt{Single} \)	
Caryopsis: colour after threshing \(\sqrt{Yellow} \)	
Grain: weight of 1000 grains (g) $\sqrt{}$ 27.0	
Grain: shape in dorsal view √ Circular	
Grain: shape in profile view \(\sqrt{Circular} \)	
Grain: size of mark of germ	
Grain: texture of endosperm (in longitudinal section) \(\sqrt{50 \% corneous} \)	s
Grain: colour of vitreous albumen Yellow	
Grain: lustre \(\sqrt{Non-lustrous} \)	
Seedling vigor score \(\) Most vigorous	
Leaf glossy score \(\sqrt{Glossy} \)	
Plant aspect score \(\sqrt{Average} \)	

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

10 ICSB 502 Salient Features



- 1. Pedigree: $[(ICSB 11 \times PM 17500-2-1) \times PM 17467B]5-2-2$
- 2. Days to 50 % flowering: 78 days
- 3. Plant height (m): 0.9
- 4. Plant girth (mm): 16.4
- 5. Biomass yield (t ha^{-1}): 15.7
- 6. Juice yield (t ha^{-1}): 3.9
- 7. Juice extraction (%): 24.8
- 8. Brix (%): 13
- 9. Sugar yield (t ha^{-1}): 0.4
- 10. Grain yield (t ha⁻¹): 2.5
- 11. Sucrose (%): 4.1
- 12. Glucose (%): 2.0
- 13. Fructose (%): 0.9
- 14 pH of juice: 5.4
- 15. Electrical conductivity of Juice (mS m⁻¹—milli siemens per metre): 13.5
- 16. Tolerance to: Midge
- 17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum	as	app	ro	ved	by	PF	VI	RA	a
Characteristics				istic vari	Remarks measured value				
	1	2	3	4	5	6	7	8	etc.
Seedling: anthocyanin colouration of coleoptile		_/							Purple
Leaf sheath: anthocyanin colouration		•							Tan
Leaf: midrib colour (5th fully developed leaf)	•	\							Dull green
Plant: time of panicle emergence (50 % of the plants		•					\		78
with complete panicle emergence)							•		
Plant: natural height of foliage up to base of flag leaf									0.8 m
Flag leaf: Extension of discoloration of midrib									Medium
Flag leaf: intensity of green coloration of midrib									Same color
compared to the blade									
Flag leaf: yellow coloration of midrib									Absent
Glume hair color									Absent
Lemma: arista formation (awns)									Absent
Stigma: anthocyanin coloration									Absent
Stigma: yellow coloration									Medium
Stigma length (mm)									Short
Flower with pedicel: length of flower									Medium
Anther: length									Short
Anther: colour of dry anther									Orange
Glume: color									Red
Plant: total height									0.9
Stem: diameter (at lower one-third height of plant) (mm)									16.4
Leaf: length of blade of the third leaf from top including flag leaf (cm)									74.6
Leaf: width of blade of the third leaf from top including									7.2
flag leaf (cm)									
Panicle: length without peduncle									24.9
Panicle: length of branches (middle third of panicle)									5.8
Panicle: density at maturity (ear head compactness)									Semi compact
Panicle: shape									Symmetric
Neck of panicle: visible length above sheath (cm)									8
Glume coverage (%)									25
Shattering									Low
Threshability									Partly threshable
Grain form									Single
Caryopsis: colour after threshing									Yellow
Grain: weight of 1000 grains (g)									31.0
Grain: shape in dorsal view									Circular
Grain: shape in profile view									Circular
Grain: size of mark of germ									Medium
Grain: texture of endosperm (in longitudinal section)									50 % corneous
Grain: colour of vitreous albumen									Yellow
Grain: lustre									Medium
Seedling vigor score									Most vigorous
Leaf glossy score									Glossy
Plant aspect score									Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

11 ICSB 675 Salient Features



- 1. Pedigree: (E 36-1 × ICSB 17)12-2
- 2. Days to 50 % flowering: 76 days
- 3. Plant height (m): 0.8
- 4. Plant girth (mm): 19.7
- 5. Biomass yield (t ha^{-1}): 13.7
- 6. Juice yield (t ha⁻¹): 4.8
- 7. Juice extraction (%): 34.8
- 8. Brix (%): 9
- 9. Sugar yield (t ha^{-1}): 0.3
- 10. Grain yield (t ha⁻¹): 3.5
- 11. Sucrose (%): 4.4
- 12. Glucose (%): 1.0
- 13. Fructose (%): 1.5
- 14. pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 18.8
- 16. Tolerance to: Aphids, Terminal drought
- 17. Adaptation: Post-rainy season

Characteristics	Characteristic value of candidate variety									Remarks measured value	
	1	2	3	4	1	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile											Purple
Leaf sheath: anthocyanin colouration				/							Purple
Leaf: midrib colour (5th fully developed leaf)											Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)								\checkmark			76
Plant: natural height of foliage up to base of flag leaf				/							0.7 m
Flag leaf: extension of discoloration of midrib											Strong
Flag leaf: intensity of green coloration of midrib compared to the blade		\checkmark									Same color
Flag leaf: yellow coloration of midrib											Absent
Glume hair color											Absent
Lemma: arista formation (awns)											Absent
Stigma: anthocyanin coloration											Absent
Stigma: yellow coloration											Medium
Stigma length (mm)				/							Short
Flower with pedicel: length of flower											Medium
Anther: length											Medium
Anther: colour of dry anther				1	$\sqrt{}$						Orange
Glume: color											Black
Plant: total height											0.8
Stem: diameter (at lower one-third height of plant) (mm)				/							19.7
Leaf: length of blade of the third leaf from top including flag leaf (cm)											72.1
Leaf: width of blade of the third leaf from top including flag leaf (cm)											8.1
Panicle: length without peduncle											24.9
Panicle: length of branches (middle third of panicle)											8.7
Panicle: density at maturity (ear head compactness)											Semi loose
Panicle: shape				/							Symmetric
Neck of panicle: visible length above sheath (cm)											3.3
Glume coverage (%)											25
Shattering				/							Low
Threshability											Partly threshable
Grain form											Single
Caryopsis: colour after threshing				1	$\sqrt{}$						Yellow
Grain: weight of 1000 grains (g)				,							35.0
Grain: shape in dorsal view				,							Circular
Grain: shape in profile view				/							Circular
Grain: size of mark of germ											Large
Grain: texture of endosperm (in longitudinal section)				,							50 % corneous
Grain: colour of vitreous albumen				r		,					Yellow
Grain: lustre	,										Medium
Seedling vigor score											Most vigorous
Leaf glossy score				,							Glossy
Plant aspect score				,							Average

12 ICSB 731 Salient Features



- 1. Pedigree: ICSV 1171BF
- 2. Days to 50 % flowering: 69 days
- 3. Plant height (m): 1.5
- 4. Plant girth (mm): 16.4
- 5. Biomass yield (t ha^{-1}): 17.0
- 6. Juice yield (%): 5.9
- 7. Juice extraction (%): 34.8
- 8. Brix (%): 10
- 9. Sugar yield (t ha⁻¹): 0.4
- 10. Grain yield (t ha⁻¹): 2.5
- 11. Sucrose (%): 4.6
- 12. Glucose (%): 1.2
- 13. Fructose (%): 1.5
- 14. pH of juice: 5.3
- 15. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 16.8
- 16. Tolerance: Anthracnose
- 17. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum					_			TRA	\ ^a	
Characteristics	Characteristic value of candidate variety								Remarks measured value	
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile		_/								Purple
Leaf sheath: anthocyanin colouration		•								Purple
Leaf: midrib colour (5th fully developed leaf)			•							Dull green
Plant: time of panicle emergence (50 % of the plants		•					\			69
with complete panicle emergence)							•			
Plant: natural height of foliage up to base of flag leaf										1.3 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib										Same color
compared to the blade										
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Absent
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Short
Flower with pedicel: length of flower										Short
Anther: length										Short
Anther: colour of dry anther										Orange
Glume: color										Straw
Plant: total height										1.5 m
Stem: diameter (at lower one-third height of plant) (mm)										16.4
Leaf: length of blade of the third leaf from top including flag leaf (cm)										68.2
Leaf: width of blade of the third leaf from top including										7.6
flag leaf (cm)										
Panicle: length without peduncle										19.4
Panicle: length of branches (middle third of panicle)										6.7
Panicle: density at maturity (ear head compactness)										Semi compact
Panicle: shape										Symmetric
Neck of panicle: visible length above sheath (cm)										6.8
Glume coverage (%)										25
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										Yellow
Grain: weight of 1000 grains (g)										31.0
Grain: shape in dorsal view										Circular
Grain: shape in profile view										Circular
Grain: size of mark of germ										Large
Grain: texture of endosperm (in longitudinal section)										25 % corneous
Grain: colour of vitreous albumen										Yellow
Grain: lustre										Lustorus
Seedling vigor score										Most vigorous
Leaf glossy score										Glossy
Plant aspect score										Below average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

13 ICSSH 25 Salient Features



- 1. Pedigree: ICSA 675 \times ICSV 700
- 2. Days to 50 % flowering: 77 days
- 3. Plant height (m): 1.9
- 4. Plant girth (mm): 14.4
- 5. Biomass yield (t ha^{-1}): 31.7
- 6. Juice yield (t ha⁻¹): 13.3
- 7. Juice extraction (%): 41.9
- 8. Brix (%): 14
- 9. Sugar yield (t ha^{-1}): 1.4
- 10. Grain yield (t ha⁻¹): 2.7
- 11. Male fertility restoration (%): 94
- 12. Sucrose (%): 6.8
- 13. Glucose (%): 1.3
- 14. Fructose (%): 1.2
- 15. pH of juice: 5.2
- 16. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 13.0
- 17. Tolerance to: Aphids, Rust
- 18. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA*										
Characteristics	Characteristic value of candidate hybrid								Remarks measured value	
	1	2	3	4	5	6	7	8 9	etc.	
Seedling: anthocyanin colouration of coleoptile									Purple	
Leaf sheath: anthocyanin colouration		•							Purple	
Leaf: midrib colour (5th fully developed leaf)			•						Dull green	
Plant: time of panicle emergence (50 % of the plants		•							77	
with complete panicle emergence)							•			
Plant: natural height of foliage up to base of flag leaf									1.7 m	
Flag leaf: extension of discoloration of midrib									Absent	
Flag leaf: intensity of green coloration of midrib									Same color	
compared to the blade										
Flag leaf: yellow coloration of midrib	$\sqrt{}$								Absent	
Glume hair color									Absent	
Lemma: arista formation (awns)									Absent	
Stigma: anthocyanin coloration									Absent	
Stigma: yellow coloration									Medium	
Stigma length (mm)									Medium	
Flower with pedicel: length of flower									Medium	
Anther: length									Medium	
Anther: colour of dry anther									Orange	
Glume: color									Red	
Plant: total height									1.9 m	
Stem: diameter (at lower one-third height of plant) (mm)									14.4	
Leaf: length of blade of the third leaf from top including flag leaf (cm)									63.78	
Leaf: width of blade of the third leaf from top including									7.33	
flag leaf (cm)					,					
Panicle: length without peduncle									22	
Panicle: length of branches (middle third of panicle)									8.5	
Panicle: density at maturity (ear head compactness)			,						Semi loose	
Panicle: shape									Symmetric	
Neck of panicle: visible length above sheath (cm)									18.78	
Glume coverage (%)									33.33	
Shattering					,				Low	
Threshability	,								Partly threshable	
Grain form				,					Single	
Caryopsis: colour after threshing					,				Yellow	
Grain: weight of 1000 grains (g)			,						32.0	
Grain: shape in dorsal view									Circular	
Grain: shape in profile view					,				Circular	
Grain: size of mark of germ									Medium	
Grain: texture of endosperm (in longitudinal section)			,						50 % corneous	
Grain: colour of vitreous albumen	,								Yellow	
Grain: lustre									Non-lustrous	
Seedling vigor score									Most vigorous	
Leaf glossy score		,							Glossy	
Plant aspect score									Good	

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

14 ICSSH 28 Salient Features



- 1. Pedigree: ICSV 474 \times SSV 74
- 2. Days to 50 % flowering: 73 days
- 3. Plant height (m): 2.1
- 4. Plant Girth (mm): 12.1
- 5. Biomass yield (t ha⁻¹): 31.7
- 6. Juice yield (t ha⁻¹): 11.9
- 7. Juice extraction (%): 37.5
- 8. Brix (%): 15
- 9. Sugar yield (t ha^{-1}): 1.3
- 10. Grain yield (t ha⁻¹): 2.6
- 11. Male fertility restoration (%): 91
- 12. Sucrose (%): 7.9
- 13. Glucose (%): 1.0
- 14. Fructose (%): 1.1
- 15. pH of juice: 5.2
- 16. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 15.4
- 17. Tolerance to: Aphids, Shoot fly
- 18. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum as approved by PPVFRA ^a										
Characteristics	Characteristic value of candidate hybrid									Remarks measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration		•	1							Purple
Leaf: midrib colour (5th fully developed leaf)		\	•							Dull green
Plant: time of panicle emergence (50 % of the plants		•			\					73
with complete panicle emergence)					•					
Plant: natural height of foliage up to base of flag leaf										1.9 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Absent
Stigma: anthocyanin coloration	V									Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Medium
Flower with pedicel: length of flower										Short
Anther: length										Medium
Anther: colour of dry anther										Orange
Glume: color										Light red
Plant: total height										2.1 m
Stem: diameter (at lower one-third height of plant) (mm)										12.1
Leaf: length of blade of the third leaf from top including flag leaf (cm)										65.11
Leaf: width of blade of the third leaf from top including flag leaf (cm)										8.22
Panicle: length without peduncle										43
Panicle: length of branches (middle third of panicle)									•	7.78
Panicle: density at maturity (ear head compactness)			\		•					Loose
Panicle: shape			Ì							Symmetric
Neck of panicle: visible length above sheath (cm)			•							15.33
Glume coverage (%)										25
Shattering	•									Low
Threshability			•							Partly threshable
Grain form					•					Single
Caryopsis: colour after threshing	V									White
Grain: weight of 1000 grains (g)										12.1
Grain: shape in dorsal view										Circular
Grain: shape in profile view			Ţ							Circular
Grain: size of mark of germ			٠							Medium
Grain: texture of endosperm (in longitudinal section)					•					25 % corneous
Grain: colour of vitreous albumen							•			Yellow
Grain: lustre			٠							Medium
Seedling vigor score					•					Most vigorous
Leaf glossy score										Glossy
Plant aspect score										Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

15 ICSSH 58 Salient Features



- 1. Pedigree: ICSA 731 × ICSA 93046 (First A2 cms system based hybrid)
- 2. Days to 50 % flowering: 78 days
- 3. Plant height (m): 2.3
- 4. Plant girth (mm): 14.6
- 5. Biomass yield (t ha^{-1}): 38.1
- 6. Juice yield (t ha^{-1}): 15.8
- 7. Juice extraction (%): 41.5
- 8. Brix (%): 17
- 9. Sugar yield (t ha^{-1}): 2.0
- 10. Grain yield (t ha^{-1}): 3.2
- 11. Male fertility restoration (%): 85
- 12. Sucrose (%): 6.9
- 13. Glucose (%): 1.1
- 14. Fructose (%): 1.5
- 15. pH of juice: 5.2
- 16. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 9.6
- 17. Tolerance to: Aphids, Shoot fly, Anthracnose
- 18. Adaptation: Post-rainy season

Characteristics	Characteristic value of candidate hybrid								Remarks measured value	
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Purple
Leaf sheath: anthocyanin colouration										Purple
Leaf: midrib colour (5th fully developed leaf)										Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)										78
Plant: natural height of foliage up to base of flag leaf										2.0 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Absent
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Short
Flower with pedicel: length of flower										Short
Anther: length										Short
Anther: colour of dry anther										Orange
Glume: color										Straw
Plant: total height										2.3 m
Stem: diameter (at lower one-third height of plant) (mm)										14.6
Leaf: length of blade of the third leaf from top including flag leaf (cm)							\checkmark			65.78
Leaf: width of blade of the third leaf from top including flag leaf (cm)										7.61
Panicle: length without peduncle										17.78
Panicle: length of branches (middle third of panicle)										6.67
Panicle: density at maturity (ear head compactness)										Semi compact
Panicle: shape										Symmetric
Neck of panicle: visible length above sheath (cm)										15.33
Glume coverage (%)										25
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										Yellow
Grain: weight of 1000 grains (g)										26.0
Grain: shape in dorsal view										Circular
Grain: shape in profile view										Circular
Grain: size of mark of germ										Medium
Grain: texture of endosperm (in longitudinal section)										50 % corneous
Grain: colour of vitreous albumen										Yellow
Grain: lustre										Non-lustrous
Seedling vigor score	$\sqrt{}$									Most vigorous
Leaf glossy score										Glossy
Plant aspect score										Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

16 ICSSH 76 Salient Features



- Pedigree: ICSA 502 × ICSV 25284
 Days to 50 % flowering: 80 days
- 3. Plant height (m): 1.9
- 4. Plant girth (mm): 13.6
- 5. Biomass yield (t ha⁻¹): 34.4
- 6. Juice yield (t ha⁻¹): 14.2
- 7. Juice extraction (%): 41.4
- 8. Brix (%): 13
- 9. Sugar yield (t ha⁻¹): 1.4
- 10. Grain yield (t ha⁻¹): 4.2
- 11. Male fertility restoration (%): 97
- 12. Sucrose (%): 3.3
- 13. Glucose (%): 1.1
- 14. Fructose (%): 1.3
- 15. pH of juice: 5.4
- 16. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 12.9
- 17. Tolerance to: Anthracnose
- 18. Adaptation: Post-rainy season

Traits recorded as per guidelines for sorghum										
Characteristics	Characteristic value of candidate hybrid									Remarks measured value
	1	2	3	4	5	6	7	8	9	etc.
Seedling: anthocyanin colouration of coleoptile										Green
Leaf sheath: anthocyanin colouration	Ţ									Tan
Leaf: midrib colour (5th fully developed leaf)	•	\								Dull green
Plant: time of panicle emergence (50 % of the plants		•								80
with complete panicle emergence)										
Plant: natural height of foliage up to base of flag leaf										1.7 m
Flag leaf: extension of discoloration of midrib										Absent
Flag leaf: intensity of green coloration of midrib compared to the blade										Same color
Flag leaf: yellow coloration of midrib										Absent
Glume hair color										Absent
Lemma: arista formation (awns)										Absent
Stigma: anthocyanin coloration										Absent
Stigma: yellow coloration										Medium
Stigma length (mm)										Short
Flower with pedicel: length of flower										Medium
Anther: length										Medium
Anther: colour of dry anther										Orange
Glume: color										Straw
Plant: total height										1.9 m
Stem: diameter (at lower one-third height of plant) (mm)										13.6
Leaf: length of blade of the third leaf from top including flag leaf (cm)										78.11
Leaf: width of blade of the third leaf from top including flag leaf (cm)										8
Panicle: length without peduncle										25
Panicle: length of branches (middle third of panicle)										8.22
Panicle: density at maturity (ear head compactness)										Semi loose
Panicle: shape										Symmetric
Neck of panicle: visible length above sheath (cm)										23.78
Glume coverage (%)										33.33
Shattering										Low
Threshability										Partly threshable
Grain form										Single
Caryopsis: colour after threshing										Yellow
Grain: weight of 1000 grains (g)										31.0
Grain: shape in dorsal view										Circular
Grain: shape in profile view										Circular
Grain: size of mark of germ										Medium
Grain: texture of endosperm (in longitudinal section)			,							50 % corneous
Grain: colour of vitreous albumen					,					Yellow
Grain: lustre	,									Medium
Seedling vigor score										Most vigorous
Leaf glossy score			,							Glossy
Plant aspect score										Average

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act

17 CSH 22 SS Salient Features



- 1. Pedigree: ICSA 38 × SSV 84
- 2. Days to 50 % flowering: 73 days
- 3. Plant height (m): 2.1
- 4. Plant girth (mm): 13.8
- 5. Biomass yield (t ha⁻¹): 36.7
- 6. Juice yield (t ha^{-1}): 13.1
- 7. Juice extraction (%): 35.6
- 8. Brix (%): 13
- 9. Sugar yield (t ha^{-1}): 1.3
- 10. Grain yield (t ha⁻¹): 3.7
- 11. Male fertility restoration (%): 100
- 12. Sucrose (%): 6.4
- 13. Glucose (%): 1.8
- 14. Fructose (%): 1.0
- 15. pH of juice: 5.3
- 16. Electrical conductivity of juice (mS m⁻¹—milli siemens per metre): 18.0
- 17. Tolerance to: Aphids, Shoot fly
- 18. Adaptation: Post-rainy season

Characteristics	Characteristic value of candidate hybrid								Remarks measured value
	1	2	3	4	5	6	7	8 9	etc.
Seedling: anthocyanin colouration of coleoptile									Green
Leaf sheath: anthocyanin colouration									Tan
Leaf: midrib colour (5th fully developed leaf)									Dull green
Plant: time of panicle emergence (50 % of the plants with complete panicle emergence)									73
Plant: natural height of foliage up to base of flag leaf									1.8 m
Flag leaf: extension of discoloration of midrib									Medium
Flag leaf: intensity of green coloration of midrib compared to the blade		\checkmark							Same color
Flag leaf: yellow coloration of midrib									Absent
Glume hair color									Absent
Lemma: arista formation (awns)									Absent
Stigma: anthocyanin coloration									Absent
Stigma: yellow coloration									Medium
Stigma length (mm)					$\sqrt{}$				Medium
Flower with pedicel: length of flower					$\sqrt{}$				Medium
Anther: length				,					Medium
Anther: colour of dry anther					,				Orange
Glume: color									Red
Plant: total height									2.1 m
Stem: diameter (at lower one-third height of plant) (mm)									13.8
Leaf: length of blade of the third leaf from top including flag leaf (cm)							\checkmark		63.87
Leaf: width of blade of the third leaf from top including							$\sqrt{}$		7.56
flag leaf (cm)					,				
Panicle: length without peduncle									23.44
Panicle: length of branches (middle third of panicle)			,						8.17
Panicle: density at maturity (ear head compactness)									Loose
Panicle: shape								,	Symmetric
Neck of panicle: visible length above sheath (cm)	,							\checkmark	26.22
Glume coverage (%)			,						25
Shattering					,				Low
Threshability	,								Partly threshable
Grain form				,					Single
Caryopsis: colour after threshing			,						Yellow
Grain: weight of 1000 grains (g)			√						25.0
Grain: shape in dorsal view			√						Circular
Grain: shape in profile view			\checkmark		/				Circular Medium
Grain: size of mark of germ					\checkmark		/		25 % corneous
Grain: texture of endosperm (in longitudinal section) Grain: colour of vitreous albumen			/				\checkmark		Yellow
Grain: lustre	/		\checkmark						Non-lustrous
	V								
Seedling vigor score Leaf glossy score	V /								Most vigorous Glossy
	V	/							Good
Plant aspect score									G00u

^a PPVFRA Protection of Plant Varieties and Farmers Rights Act