



Month	Fortnight	Growth stage	Operations
April	1	90-100 DAT	● Do roughing in seed production fields to avoid seed mixtures
	2	100-110 DAT	● Drain out water from the main field
		110-120 DAT	● Harvest the crop when 80 per cent of the grains in panicles got matured (at physiological maturity stage)
May	1	Post-harvest Operations	● Do threshing and cleaning ● Dry the grains under sun until 14 per cent moisture content and pack it properly before storing

There are ample possibilities of improving rice productivity through 'Integrated Crop Management (ICM)' strategies by growing appropriate varieties with improved crop and natural resource management practices and need based plant protection measures to keep the pest population below economic threshold level. The components of ICM and its operation schedule for different rice ecologies are mentioned in the crop calendar. Since weather plays an important role in rice productivity and sustainability, execution of all the agricultural operations at appropriate time during the cropping season will further help in improving the productivity.

## Monthly Crop Calendar for Rice Cultivation

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# MONTHLY CROP CALENDAR FOR RICE CULTIVATION

K.S. Rao, Sanjoy Saha, D.S. Meena and P. Jana

Rice, the staple food crop, is grown in 148 million hectares of land in the world. The contribution of Asia is about 90 per cent with limited extent in North & South America, Africa, Australia and Europe. In India, rice occupies the first place amongst all cereals and contributes over 43 per cent of the annual food grain production of the country. It provides food and calorie to 65 per cent of the population. The crop is grown over a wide range of soils, land types, climatic and hydrological conditions from Kashmir in North to Kanyakumari in South and Gujarat in West to Arunachal Pradesh in East. Thus rice production system differ widely in cropping intensity, growing season and grain yield ranging from single crop of rainfed lowland and upland rice to double or triple crop in irrigated system. During wet season, the crop is direct seeded either under dry condition in uplands and some parts of rainfed lowlands of intermediate and deep water rice ecologies or under wet condition in irrigated and partly in shallow lowlands, where as transplanting is practiced mostly in irrigated and shallow lowlands. It is established either by sowing of pre-germinated seeds in wet saturated rice fields or by transplanting during dry season. Since it is grown in different ecologies, the different packages of practices are needed for enhancing the productivity in different rice ecologies. Efforts have been made at the Central Rice Research Institute to bring out this publication highlighting major agricultural operations to be performed in different months for improving and sustaining the productivity of rice in different rice ecologies.



# Calendar of operations for rainfed upland rice

**Season:** June to September-October

**Varieties :** Anjali, Vandana, Kalinga III, Virendra, Sadabahar

Month	Fortnight	Growth stage	Operations
June	1	Pre-sowing	<ul style="list-style-type: none"> <li>Do final land preparation by shallow tillage 2-3 times to get a fine tilth after onset of monsoon followed by proper land leveling</li> <li>Apply well decomposed farm yard manure or compost at 2-3 t ha<sup>-1</sup> during final land preparation</li> <li>Apply full P (125 kg SSP ha<sup>-1</sup>) and 2/3<sup>rd</sup> of K (22 kg MOP ha<sup>-1</sup>) during final land preparation</li> </ul>
	2	Sowing	<ul style="list-style-type: none"> <li>Seed rate : 75-80 kg ha<sup>-1</sup></li> <li>Fertilizer dose : 40 : 20: 20 kg N, P<sub>2</sub>O<sub>5</sub> &amp; K<sub>2</sub>O ha<sup>-1</sup></li> <li>Do seed treatment with chloropyrphos at 30 ml/ 100 kg seed against termite infestation</li> <li>Sow seed at 20 cm apart rows behind the country plough or by seed drill during middle of June</li> </ul>
		3 DAS	<ul style="list-style-type: none"> <li>Spray herbicide pretilachlor in moist soil at 1600 ml ha<sup>-1</sup> after mixing in 500 litre of water for controlling grassy weeds and sedges</li> </ul>

Month	Fortnight	Growth stage	Operations
July	1	20 DAS	<ul style="list-style-type: none"> <li>Do first manual weeding or mechanical weeding by operating finger weeder in herbicide non-treated fields</li> <li>Apply first dose of 1/3<sup>rd</sup> N (29 kg urea ha<sup>-1</sup>)</li> </ul>
August	1	40-45 DAS	<ul style="list-style-type: none"> <li>Do second or final hand weeding</li> <li>Apply 1/3<sup>rd</sup> N (29 kg urea ha<sup>-1</sup>) as second top dressing</li> </ul>
	2	60 DAS	<ul style="list-style-type: none"> <li>Apply rest 1/3<sup>rd</sup> of N and K (29 kg urea and 11 kg MOP ha<sup>-1</sup>)</li> </ul>
		60-75 DAS	<ul style="list-style-type: none"> <li>Do dusting with methyl parathion at 25 kg ha<sup>-1</sup> in the early morning or late evening when 2-3 gundhi bugs/ m<sup>2</sup> are observed</li> </ul>
		70-75 DAS	<ul style="list-style-type: none"> <li>Do roughing in seed production fields to avoid seed mixtures</li> </ul>
September	2	85-95 DAS	<ul style="list-style-type: none"> <li>Harvest the crop when 80 per cent of the grains in panicles got matured (at physiological maturity stage)</li> </ul>
October	1	Post-harvest operations	<ul style="list-style-type: none"> <li>Do threshing and cleaning</li> <li>Dry the grains under sun until 14 per cent moisture content and store it properly</li> </ul>



# Calendar of operations for rainfed lowland direct-sown rice

**Season:** May to December

**Varieties :** Pooja, Moti, Swarna Sub 1, Pankaj (Shallow lowlands)  
Gayatri, Savitri, Varshadhan, Sarala, Durga (Intermediate & deep water)

Month	Fortnight	Growth stage	Operations
May	2	Pre-sowing	<ul style="list-style-type: none"> <li>Do final land preparation by shallow tillage 2-3 times to get a fine tilth in intermediate deep and deep water rice ecology followed by proper land leveling</li> <li>Apply well decomposed farm yard manure at 5 t ha<sup>-1</sup> during land preparation</li> <li>Apply full dose of P (65 kg DAP ha<sup>-1</sup>) and K (33 kg MoP ha<sup>-1</sup>) during final land preparation.</li> </ul>
		Sowing	<ul style="list-style-type: none"> <li>Seed rate : 75-80 kg ha<sup>-1</sup></li> <li>Fertilizer dose: 60:30:30 (for shallow) and 40:20:20 (for intermediate to deep ) kg N, P<sub>2</sub>O<sub>5</sub> &amp; K<sub>2</sub>O ha<sup>-1</sup></li> <li>Do seed treatment with agrosan GN or bavistin at 2 g kg<sup>-1</sup> of seed</li> <li>Sow seed at 20 cm apart rows behind the country plough in 4-5 cm depth or by seed drill or spot seeding (dibbling) at 20 cm x 15 cm spacing</li> </ul>
		3-5 DAS	<ul style="list-style-type: none"> <li>Spray herbicide pretilachlor at 1600 ml ha<sup>-1</sup> in moist soil after mixing in 500 litre of water for controlling grassy weeds and sedges</li> </ul>
June	2	20 DAS	<ul style="list-style-type: none"> <li>Do first manual weeding or mechanical weeding by operating finger weeder in herbicide non-treated fields</li> <li>Apply 1/3<sup>rd</sup> N in shallow lowland (35 kg urea ha<sup>-1</sup>) as first top dressing</li> <li>Apply the rest N (60 kg urea ha<sup>-1</sup>) in intermediate and deep water rice ecology</li> </ul>
Month	Fortnight	Growth stage	Operations
July	1	40-45 DAS	<ul style="list-style-type: none"> <li>Do beaushening in shallow lowlands after accumulation of sufficient water (at least 7-10 cm standing water) in fields where weeding is not done earlier</li> <li>Then apply 1/3<sup>rd</sup> of N (35 kg urea ha<sup>-1</sup>) as second top dressing</li> </ul>
	1	50-60 DAS	<ul style="list-style-type: none"> <li>Do second hand weeding for removal of sedges and broad leaf/aquatic weeds in manually weeded fields</li> <li>Apply 1/3<sup>rd</sup> of N (35 kg urea ha<sup>-1</sup>) as final top dressing in shallow lowlands</li> <li>Do planting with colonel tillers removed from an established direct seeded crop or aged seedlings in case of crop failures in intermediate and deep water rice ecology</li> </ul>
August	1 & 2	60-90 DAS	<ul style="list-style-type: none"> <li>Do need-based plant protection if required against insects/diseases attack</li> <li>Apply carbafulan at 33 kg ha<sup>-1</sup> when 1-2 yellow stem borer moths/ one egg mass are found in 1.0 m<sup>2</sup>. If water depth is more than 10 cm, spray monocrotophos twice at weekly interval at 1500 ml ha<sup>-1</sup> after mixing in 500 litre of water</li> <li>Spray monocrotophos at 1500 ml ha<sup>-1</sup> or imidachloprid at 500 ml ha<sup>-1</sup> against leaf folder and case worm</li> <li>Spray Streptocycline (75 g ha<sup>-1</sup>) + copper oxychloride (500 g ha<sup>-1</sup>) by mixing in 500 litre of water against bacterial blight</li> </ul>
September	1 & 2	90-120 DAS	<ul style="list-style-type: none"> <li>Do need-based plant protection as mentioned above</li> </ul>
October	1	120-135 DAS	<ul style="list-style-type: none"> <li>Do need-based plant protection if required against stem borer as mentioned earlier</li> </ul>
November	1	165-175 DAS	<ul style="list-style-type: none"> <li>Do roughing in seed production fields to avoid seed mixtures</li> </ul>
	2	180-190 DAS	<ul style="list-style-type: none"> <li>Harvest the crop when 80% of the grains in panicles got matured (at physiological maturity stage)</li> </ul>
December	1	Post-harvest Operations	<ul style="list-style-type: none"> <li>Do threshing and cleaning</li> <li>Dry the grains under sun until 14% moisture content and store it properly</li> </ul>



# Calendar of operations for transplanted wet season rice

Season: June to November

**Varieties:** Naveen, Vijeta, Swarna, Surendra, Padmini **Coastal Saline:** Lunishree, SR 26 B, Pankaj

**Hybrids:** Rajlakshmi, Ajay, KRH 2, PHB 71; **Scented varieties:** Geetanjali, Ketekijoha, Nua Kalajeera, Nua Dhusara

Month	Fortnight	Growth stage	Operations
June	1	Nursery	<ul style="list-style-type: none"> <li>Do nursery bed preparation during early June for transplanting in favourable lowlands /irrigated medium lands/ coastal saline areas</li> <li>Sow the pre-germinated seeds</li> <li>Nursery area : 800 m<sup>2</sup> for planting in one hectare</li> <li>Seed rate : 45-50 kg ha<sup>-1</sup></li> <li>Fertilizer dose : 10 kg each of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup></li> </ul>
June	2	3-5 DAS	<ul style="list-style-type: none"> <li>Spray herbicide pretilachlor at 100 ml or pyrazosulfuron ethyl at 8 g for 800 m<sup>2</sup> area to control grassy weeds and sedges</li> <li>Or as alternate of herbicide application, keep 5 cm standing water for 7 days before sowing. Drain out water as germination begins. Again maintain 2-5 cm standing water for next 15 days to suppress weeds</li> </ul>
June	2	Land preparation	<ul style="list-style-type: none"> <li>Do first puddling for main field preparation</li> <li>Apply well decomposed farm yard manure at 5 t ha<sup>-1</sup></li> </ul>
July	1	Transplanting	<ul style="list-style-type: none"> <li>Do second puddling after 7-10 days and proper land leveling for uniform crop stand</li> <li>Apply 1/3<sup>rd</sup> of N (35 kg urea ha<sup>-1</sup>) and full dose of P and K (110 kg DAP and 85 kg MOP ha<sup>-1</sup>) as basal</li> <li>Pull out 25-30 days old seedlings from nursery beds (40-50 days old seedlings for coastal saline areas)</li> <li>Do seedling root dipping in chloropyriphos solution (1 ml in 1 litre of water) against insect attack</li> <li>Transplant 2-3 seedlings per hill at 20 cm x 15 cm spacing</li> <li>Maintain thin layer of water (1-2 cm) in the main field upto 10 DAT</li> </ul>

Month	Fortnight	Growth stage	Operations
	2	3-7 DAT	<ul style="list-style-type: none"> <li>Apply herbicide pretilachlor at 1500 ml ha<sup>-1</sup> or pyrazosulfuron ethyl at 100 g ha<sup>-1</sup> by mixing in 50 kg sand and uniformly broadcast in the field for controlling grassy weeds and sedges</li> </ul>
		8-10 DAT	<ul style="list-style-type: none"> <li>For controlling non-grassy broadleaf weeds and sedges, spray herbicide metsulfuron methyl at 4 g ha<sup>-1</sup> or almix 20 g ha<sup>-1</sup> after mixing in 500 litre of water</li> </ul>
		10 DAT	<ul style="list-style-type: none"> <li>Maintain 5 cm water level in the main field upto tillering stage</li> </ul>
August	1	20-25 DAT	<ul style="list-style-type: none"> <li>Do first manual weeding if herbicide was not applied</li> <li>Apply 1/3<sup>rd</sup> of N (60 kg urea for inbreds and 70 kg urea for hybrids ha<sup>-1</sup>) as first top dressing</li> </ul>
	2	30-40 DAT	<ul style="list-style-type: none"> <li>Do need-based plant protection against insects/ diseases specially stem borer, leaf folder, case worm, bacterial blight (doses as mentioned earlier)</li> </ul>
September	1	40-45 DAT	<ul style="list-style-type: none"> <li>Do second manual weeding if required in herbicide non-treated fields</li> <li>Apply 1/3<sup>rd</sup> of N (60 kg urea for inbreds and 70 kg urea for hybrids ha<sup>-1</sup>) as final top dressing</li> </ul>
September	2	65-75 DAT	<ul style="list-style-type: none"> <li>Do need-based plant protection against insects/ diseases specially leaf folder, case worm, gall midge and bacterial blight</li> </ul>
October	1	80-85 DAT	<ul style="list-style-type: none"> <li>Do roughing in seed production fields to avoid seed mixtures</li> <li>Drain out water from the main field</li> </ul>
	2	95-100 DAT	<ul style="list-style-type: none"> <li>Harvest the crop when 80 per cent of the grains in panicles got matured (at physiological maturity stage)</li> </ul>
November	1	Post-harvest Operations	<ul style="list-style-type: none"> <li>Do threshing and cleaning</li> <li>Dry the grains under sun until 14% moisture content and pack it properly for storing</li> </ul>



# Calendar of operations for wet direct-sown summer rice

**Season:** December to April-May  
**Varieties:** Naveen, Satabdi, Lalat, Khandagiri

Month	Fortnight	Growth stage	Operations
December	2	Land Preparation	<ul style="list-style-type: none"> <li>Do initial shallow tillage after the harvest of wet season rice followed by ponding of water and first puddling</li> </ul>
January	1	Sowing	<ul style="list-style-type: none"> <li>Do second puddling after 7-10 days and proper land leveling to facilitate uniform crop stand and better water management</li> <li>Apply full dose of P (87 kg DAP ha<sup>-1</sup>) and 2/3<sup>rd</sup> of K (23 kg MOP ha<sup>-1</sup>) as basal</li> <li>Sow pre-germinated sprouted seeds in saturated field either by spot seeding (dibbling) at 15 cm x 15 cm spacing or by drum seeder at 15 cm apart rows</li> <li>Seed rate : 70 kg ha<sup>-1</sup></li> <li>Fertilizer dose : 80: 40: 40 kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup></li> </ul>
	1	3-5 DAS	<ul style="list-style-type: none"> <li>Do spray herbicide pretilachlor + safener at 1350 ml ha<sup>-1</sup> in moist saturated field for controlling grassy weeds and sedges</li> </ul>
		7-10 DAS	<ul style="list-style-type: none"> <li>Or spray pyrazosulfuron ethyl at 100 g ha<sup>-1</sup> to suppress wide spectrum of weeds (grassy weeds, sedges and broadleaf weeds)</li> </ul>
	2	15 DAS	<ul style="list-style-type: none"> <li>Do gap filling, if required</li> <li>Apply 1/3<sup>rd</sup> of N (46 kg urea ha<sup>-1</sup>) as first top dressing</li> <li>Apply carbafulan (furadon) at 33 kg ha<sup>-1</sup> by uniformly broadcasting in field against stem borer infestation</li> </ul>
	2	7-21 DAS	<ul style="list-style-type: none"> <li>Keep the field in saturated condition for first 7-10 days, subsequently maintain 2-3 cm standing water up to 3 weeks for better suppression of early emerging weeds</li> </ul>
		18-20 DAS	<ul style="list-style-type: none"> <li>In areas predominant with sedges and non-grassy broadleaf weeds, spray almix at 20 g ha<sup>-1</sup> or bensulfuron methyl at 100 g ha<sup>-1</sup></li> <li>Do spray in moist (saturated) field after draining out of standing water by mixing the herbicides in 500 litres of water</li> </ul>
Month	Fortnight	Growth stage	Operations
February	2	21 DAS	<ul style="list-style-type: none"> <li>Do first manual weeding if herbicide was not applied</li> <li>Or as a cost effective alternative of manual weeding, operate finger weeder in between rice rows in saturated field after draining out of excess water followed by manual removal of weeds within rice rows</li> <li>Apply irrigation at 3-5 cm depth after disappearance of water from the field starting from 21 DAS till 15 days prior to maturity</li> <li>Do need-based plant protection against insect/pest like plant hoppers by spraying imidachloprid (500 ml ha<sup>-1</sup>) or monocrotophos (1500 ml ha<sup>-1</sup>) in 500 litres of water</li> </ul>
	2	40 DAS	<ul style="list-style-type: none"> <li>Do second manual weeding, if required in herbicide non-treated plots</li> <li>Apply 1/3<sup>rd</sup> of N (46 kg urea ha<sup>-1</sup>) as second top dressing</li> </ul>
March	1	60 DAS	<ul style="list-style-type: none"> <li>Apply final 1/3<sup>rd</sup> of N (46 kg urea ha<sup>-1</sup>) and 1/3<sup>rd</sup> of K (12 kg ha<sup>-1</sup>)</li> <li>Need-based plant protection against insect pests like stem borer, plant hopper or disease like blast and brown spot</li> <li>Spray tilt twice at 7 days interval at 2 ml per litre of water against brown spot when 8-10% leaf infection occurs</li> <li>Spray hinosan twice at 7 days interval at 2 ml per litre of water against blast when 8-10% leaf infection occurs</li> </ul>
	2	40 DAS	<ul style="list-style-type: none"> <li>Do need-based plant protection against insects/ diseases as mentioned above</li> </ul>
April	1	90-95 DAS	<ul style="list-style-type: none"> <li>Do roughing in seed production fields to avoid seed mixtures</li> </ul>
	2	100-105 DAS	<ul style="list-style-type: none"> <li>Drain out water from the main field</li> </ul>
		105-115 DAS	<ul style="list-style-type: none"> <li>Harvest the crop when 80% of the grains in panicles got matured (at physiological maturity stage)</li> </ul>
May	1	Post-harvest Operations	<ul style="list-style-type: none"> <li>Do threshing and cleaning</li> <li>Dry the grains under sun until 14% moisture content and store it properly</li> </ul>



# Calendar of operations for transplanted summer rice

**Season:** December to May

**Varieties:** Naveen, Satabdi, Chandan, IR 36, Lalat; Annapurna, CSR 4 (Coastal saline)

Month	Fortnight	Growth stage	Operations
December	1	Nursery	<ul style="list-style-type: none"> <li>Prepare wet seed bed by shallow tillage twice at 7-10 days interval followed by ponding of water and puddling</li> <li>Apply 2 kg urea, 5 kg SSP and 1.5 kg MOP in 800 m<sup>2</sup> area</li> <li>Sow pre-germinated (sprouted) seeds at 45-50 kg ha<sup>-1</sup></li> <li>In coastal saline areas, raised seed bed in non-saline or less saline field. Keep water at shallow depth (0-3 cm) from the beginning to reduce the chance of salinity damage</li> <li>Do frequent washing of seed bed by draining out of water for reducing salinity level</li> <li>Fertilizer dose : 10 kg each of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup></li> </ul>
December	2	Land preparation	<ul style="list-style-type: none"> <li>Do initial shallow tillage after the harvest of wet season rice followed by ponding of water and first puddling (use non-saline water in coastal saline areas)</li> </ul>
January	1	Final land Preparation	<ul style="list-style-type: none"> <li>Do second puddling after 7-10 days and proper land leveling to facilitate uniform crop stand</li> <li>In coastal saline areas, pond fresh water before transplanting for leaching of soluble salts and reducing the problem of salinity</li> <li>Apply full dose of P (109 kg DAP ha<sup>-1</sup>) and 2/3<sup>rd</sup> of K (56 kg MOP ha<sup>-1</sup>) as basal</li> <li>Fertilizer dose : 100:50:50 kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup></li> </ul>
	1	Transplanting	<ul style="list-style-type: none"> <li>Pull out 25 days old seedlings from nursery beds</li> <li>Do seedling root dipping in chloropyriphos solution (1 ml in 1 litre of water)</li> <li>Transplant 2-3 seedlings per hill at 15 cm x 15 cm spacing</li> <li>Maintain thin layer of water (1-2 cm) in the main field upto 10 DAT</li> </ul>
	1	3-5 DAT	<ul style="list-style-type: none"> <li>Spray herbicide pretilachlor + safener at 1350 ml ha<sup>-1</sup> for controlling grassy weeds and sedges</li> </ul>
		7 DAT	<ul style="list-style-type: none"> <li>Or spray pyrazosulfuron ethyl at 100 g ha<sup>-1</sup> 7 DAT to suppress broad spectrum of weeds including grasses, sedges and broadleaf weeds</li> </ul>
Month	Fortnight	Growth stage	Operations
	2	18 DAT	<ul style="list-style-type: none"> <li>In areas predominant with sedges and non-grassy broadleaf weeds, spray almix at 20 g ha<sup>-1</sup> or bensulfuron methyl at 100 g ha<sup>-1</sup></li> <li>Spray in moist (saturated) field after draining out of standing water by mixing the herbicides with 500 litres of water</li> </ul>
		7-21 DAT	<ul style="list-style-type: none"> <li>Keep the field in saturated condition for first 7-10 days, subsequently maintain 2-3 cm standing water up to 3 weeks for better suppression of early emerging weeds</li> </ul>
	2	10-12 DAT	<ul style="list-style-type: none"> <li>Do gap filling, if required</li> <li>Apply carbafuron (furadon) at 33 kg ha<sup>-1</sup> by uniformly broadcasting in field against stem borer infestation if seedling root dipping is not done</li> </ul>
		10 DAT	
February	1	20 DAT	<ul style="list-style-type: none"> <li>Do first manual weeding if herbicide was not applied</li> <li>Or as a cost effective alternative of manual weeding, operate finger weeder in between rice rows in saturated field after draining out of excess water followed by manual removal of weeds within rice rows.</li> </ul>
		20 DAT	<ul style="list-style-type: none"> <li>Apply 1/3<sup>rd</sup> of N (58 kg urea ha<sup>-1</sup>) as first top dressing</li> <li>Apply irrigation at 3-5 cm depth after disappearance of water from the field starting from 21 DAT to 15 days prior to maturity</li> </ul>
		20 DAT	<ul style="list-style-type: none"> <li>Do need-based plant protection against insect/pests and diseases as mentioned earlier</li> </ul>
	2	40 DAT	<ul style="list-style-type: none"> <li>Do second manual weeding, if required in herbicide non-treated plots</li> <li>Apply 1/3<sup>rd</sup> of N (58 kg urea ha<sup>-1</sup>) as second top dressing</li> </ul>
March	1	60 DAT	<ul style="list-style-type: none"> <li>Apply 1/3<sup>rd</sup> of N (58 kg urea ha<sup>-1</sup>) and 1/3<sup>rd</sup> of K (28 kg ha<sup>-1</sup>) as final top dressing</li> <li>Do need-based plant protection against insect/pests and diseases as mentioned earlier</li> </ul>
	2		<ul style="list-style-type: none"> <li>Do need-based plant protection against insect/pests and diseases as mentioned earlier</li> </ul>





SATYAKRISHNA



NAVEEN



ABHISEK



A.JAY  
(HYBRID)



GEETANJALI  
(SCENTED)



CHANDRAMA