Sustainable Agriculture Project Class 12

Here are the latest and must try Sustainable Agriculture Project Class 12 students:

Saving Water

1. Build a simple drip watering system using plastic bottles.
2. Test if adding mulch (like straw) helps soil stay wet longer.
3. Design a small 'rain garden' to catch water from a roof.
4. Compare how fast tap water vs. rainwater makes plants grow.
5. Build a simple sensor that beeps when soil is too dry.
6. Make a list of 10 local plants that need very little water.
7. Test if 'greywater' (from sinks) is safe for watering grass.
8. Show how contour plowing (farming in rows) stops water from washing away.
9. Collect morning dew on a sheet to see how much water you can get.
10. Design a smart sprinkler system that only waters when needed (a model).
11. Compare how much water a shower wastes vs. a bath.
12. Make a poster showing 10 ways to save water on a farm.

Making Healthy Soil

13. Create a small worm farm (vermicompost) in a bin.
14. Test if adding banana peels to soil helps plants grow.
15. Compare store-bought fertilizer with homemade compost.
16. Build a 3-bin compost system for your school or home.
17. Test the pH (acid level) of soil from 5 different places.
18. Make 'compost tea' and see if it makes plants greener.
19. Count how many earthworms live in healthy vs. hard soil.

20. Grow beans in three pots: one with sand, one with clay, one with compost.
21. Collect and identify 5 types of 'good' bugs that help soil.
22. Show how planting cover crops (like clover) stops soil from blowing away.
23. Make a model showing how rotating crops (corn, then beans) keeps soil strong.
24. Test if adding coffee grounds makes soil better for plants.

Smart Ways to Grow Plants

25. Grow potatoes in a sack or a bucket instead of the ground.
26. Build a vertical garden on a fence to save space.
27. Compare seeds from a store with seeds saved from a tomato.
28. Grow five different herbs indoors on a windowsill.
29. Build a 'keyhole' garden (a round garden) that saves water.
30. Try growing lettuce in a jar with only water (hydroponics).
31. Plant a 'three sisters' garden (corn, beans, and squash) together.
32. Map the best sunny spots in your school for a garden.
33. Test if plants grow taller with classical music or rock music.
34. Make a self-watering planter from an old plastic bottle.
35. Compare plants grown in plastic pots vs. natural clay pots.
36. Study how to 'graft' a lemon branch onto an orange tree.

Natural Pest Control

37. Make a bug spray from soap, garlic, or neem oil.
38. Plant marigolds next to tomatoes to see if it stops bugs.
39. Build a 'bug hotel' to attract good insects like ladybugs.
40. Identify and draw 5 common garden pests in your area.
41. Make sticky yellow traps to catch small flying pests.

42. Raise and release ladybugs on a plant with aphids.
43. Make a scarecrow or use old CDs to scare birds away.
44. Make a guide showing 'good bugs' (like spiders) for farmers.
45. Test if a ring of salt or eggshells stops slugs.
46. Study how ants make trails and how to stop them naturally.
47. Build a simple fence model to keep rabbits out of a garden.
48. Test if planting mint nearby keeps ants away from plants.

Farm Animals and Nature

49. Design a chicken coop that uses a solar-powered fan.
50. Study if chickens with more space lay more eggs.
51. Make a 'bee bath' with rocks so bees can drink safely.
52. Plant a small patch of flowers just for local butterflies.
53. Research "rotational grazing" where animals move to new fields.
54. Design a simple system to collect rainwater for animals to drink.
55. Make a poster showing good vs. bad ways to treat farm animals.
56. Identify 5 local birds that help farmers by eating bugs.
57. Build a small house for wild bees (a bee hotel).
58. Compare the cost and taste of free-range eggs vs. caged eggs.
59. Design a puzzle toy to keep a pig or goat from getting bored.
60. Study how a farmer's dog helps move sheep (using videos).

Using Farm Waste

61. Make paper at home using old corn husks or grass.
62. Use onion skins or avocado pits to make natural dyes for cloth.
63. Build a 'biogas digester' in a bottle to show how waste makes gas.

64. Turn an old wooden box (pallet) into a small planter.
65. Make fireplace logs by pressing old, dry leaves and paper.
66. Use rice water (from washing rice) to water plants.
67. See if orange peels can be used to make a cleaning spray.
68. Make a model showing how farm waste (manure) can make electricity.
69. Collect and sprout seeds from kitchen scraps (like peppers).
70. Make a plan for your school cafeteria to compost all its food waste.
71. Test if sawdust can be a good base for growing mushrooms.
72. Create art (a collage) from natural things (leaves, seeds, stems).

Energy on the Farm

73. Build a small wind turbine that can light up one LED.
74. Make a solar oven from a cardboard box and foil.
75. Test which angle for a solar panel catches the most sun.
76. Draw a plan for a farm that uses only solar and wind power.
77. Measure the energy used by a water pump vs. lifting water by hand.
78. Compare LED lights and old hot lights for growing plants indoors.
79. Make a model that uses falling water (hydro-power) to spin a wheel.
80. Calculate the cost of running a tractor on diesel vs. biodiesel.
81. Build a (safe) solar-powered charger for a phone.
82. Study how a 'green roof' (a roof with plants) can keep a building cool.
83. Make a plan to light a chicken coop with one small solar panel.
84. Test how long it takes to boil water with a solar kettle.

Food and Community

85. Make a map of all the 'farmer's markets' near your home.

86. Survey 20 students on what 'organic food' means to them.
87. Compare the price of local vegetables vs. supermarket vegetables.
88. Create a 'Farm to School' lunch menu for one week.
89. Make a simple guide for families on how to start a balcony garden.
90. Study how far your lunch food traveled to get to your plate.
91. Start a 'seed library' where people can trade seeds for free.
92. Interview a local farmer about their biggest problems and successes.
93. Make a photo project of "ugly" fruits to help stop food waste.
94. Host a taste test: local honey vs. store-brand honey.
95. Create a small recipe book using only local, in-season foods.
96. Organize a day to help weed or plant at a community garden.

Farm Technology (Low-Tech)

97. Design an idea for a phone app that helps farmers check rain.
98. Make a model of a farm that uses a (safe) drone to check crops.
99. Build a simple alarm (buzzer) that rings when a gate is left open.
100. Use a free website to create a 3D model of a perfect small farm.
101. Make a website that teaches 1st graders about where food comes from.
102. Create a simple game (board game) that teaches players how to rotate crops.
103. Build a simple weather station to record rain and wind.
104. Design a sensor that texts a farmer when a water tank is empty (a model).
105. Make an app idea that identifies plant sickness from a photo.
106. Create a simple spreadsheet to track the cost of growing one tomato.
107. Build a simple tool for picking fruit that is too high to reach.
108. Test if a smart-phone camera can be used to check if a fruit is ripe.

The Future of Farming

109. Build a small 'aquaponics' system (with fish and plants) in a tank.
110. Grow mushrooms in a bucket using old coffee grounds.
111. Design a farm that grows food on a city building's rooftop.
112. Research and draw how people might grow food on Mars.
113. Make a model of an 'underground' farm that uses LED lights.
114. Study 'food forests' where trees and plants grow together like a jungle.
115. Grow edible algae (spirulina) in a small fish tank.
116. Design a kitchen 'appliance' that grows salad for you.
117. Research 3 new ways farmers are growing food in the desert.
118. Compare (research) lab-grown meat vs. regular farm meat.
119. Make a model of a vertical farm inside an old shipping container.
120. Study 'agroforestry' (planting trees and crops) and list 5 benefits.