CONTENT

		Page
Ack	nowledgements of Illustrations	xi
1.	Introduction	1
2.	The Nature of Cereal Straw	16
	The Length and weight of straw	16
	Physical characteristics and condition	17
	Purity of straw	17
	Moisture content	19
	The fractions of straw	21
	The morphology of straws	23
	Chemical composition	24
3.	Straw Yields and Availability of Surplus Straw	38
	The effect of cutting height on straw yield	40
	The effect of selection and plant breeding	41
	The effect of soil type, rotation, and fertilizers on straw yield and straw: grain ratio	42
	The effect of season on straw yield and on straw: grain ratio	44
	The effect of crop density on straw yield	44
	The effect of lodging and of chlormequat (CCC) and other chemicals on straw yield	45
	The effect of cutting date on straw yield	45
	The calculation of straw yield	46
	Available surpluses of straw	46
4.	Harvesting, Transport, and Storage	49
	The history of cereal harvesting	49
	Field baling	53
	The influence of the weather upon straw harvesting	54
	Bale handling systems	55
	Stack wagons	58
	Compaction by evacuation	59
	Field cubing and wafering	60
	Whole-crop harvesting	61
	Transport	64
	Storage	66
	Deterioration in stored straw and possible countermeasures	68
5.	General agricultural and Horticultural uses	69
	Straw for bedding livestock and farmyard manure	69
	Composting and the nitrogen factor	71
	Comparison between compost and straw ploughed-in	72
	Other experimental results from the incorporation of straw into the soil	73
	The influence of soil temperature on the results of straw incorporation	76
	The effect of anaerobic conditions in rice fields on the results of straw incorporation	76
	Straw as a stimulant to nitrogen-fixing bacteria	77
	The effect of straw incorporation on soil organic matter content	77
	The effect of straw disposal methods on mineral nutrients other than nitrogen	80
	Harmful effects of straw breakdown in the soil	81
	Field burning: methods and costs The effect of hymring on weeds, discoses, neets, and heneficial sail forms.	82
	The effect of burning on weeds, diseases, pests, and beneficial soil fauna Other effects of straw burning on soil temperature and tilth	86 87
	Onici chects of shaw duffing on son temperature and thui	0/

	Practical experience of straw burning in the United Kingdom	87
	Mulching	89
	Erosion control	90
	Mushroom compost	92
	Straw bales for glasshouse crops	95
	Straw for strawberries	97
	Minor horticultural uses	98
6.	Straw as a Feedingstuff	99
	The effect of various treatments on straw intake and digestibility	103
7.	Straw for Pulping, Paper, and Board	116
8.	Straw for Fuel and Chemicals	123
	The energy in straw	123
	Simple combustion	124
	Bacterial digestion	126
	Briquetting	128
	Pulverizing	128
	Pyrolysis	128
	Producer gas	129
	Industrial alcohol	130
	Methane	130
	Production of chemicals from straw	132
9.	Straw for Building and Applied Purposes	136
	Straw for bricks, cob, and concrete blocks	136
	Board making	137
	Race tracks	140
	Straw for miscellaneous purposes	140
10.	Straw for Craft work and Packaging	142
	Thatching	142
	Rope and envelope making	143
	Straw lip-work	144
	Straw plait	146
	Packing materials	150
	Corn dollies	150
	pendix 1	151
Appendix 2		158
Bibliography		159
Index		169