Chapter 2 - Biomass: a biotechnology substrate?

2.1 A Biomass Strategy
   A.Photosynthesis
     1. lignocellulose
   B.Distribution on land
   C.Fossil fuel source
     1. nonrenewable
     2. future ?
       a. current restriction to switching

2.2 Natural Raw Materials
   A.Carbohydrates - know example & usability
     1. sugar
     2. starch
     3. hemicellulose
     4. cellulose
     5. lignocellulose = lignin
   B.Current products from biomass (table 2.3) - <u>briefly</u>
     1. fuels
     2. feedstocks
     3. fertilizers
     4. feeds

2.3 Availability of by-products
   A.Definition ob by-products
   B.Agriculture
     1. examples
   C.Author's primary objective of biotechnology
     1. What do you think?
   D.Waste materials
     1. primary reason to use
     2. biggest hinderance
     3. volumes
        1)animal rearing
        2)ag waste
        3)food industry
        4)domestic wastes
     4. food industry by-products currently used
        1)chemical basis
        2)hinderance
       a. examples
        1)molasses
        2)whey
     5. agriculture & forestry by-products currently used
       a. straw & wood wastes
       b. animal wastes
        1)size difference
       c. problem

2.4 Raw materials & the future of biotechnology
  A. Criteria used to determine selection of raw material
    1. price
    2. availability
    3. quality
    4. biological availability
       a. range
    5. concentration
    6. local technology potential
  B. Used
    1. Currently in use
    2. Near future & why
  C. Inseparable from supply & cost of raw materials
    1. example petrochemical industry
  D. Reasons for successfulness of raw material for biotechnology