

# Implementation of Bean Fertilization

## 1. Introduction

The objective of this report is to represent the implementation of Bean fertilization expert system according to the design in the technical report *TR/CLAES/235/2002.3*. The code is separated into several files. A comprehensive description for each file is provided using template format. This system is implemented using KROL version 3 under Windows 2000. Sections two, three, and four present the implementation of domain, inference, and task knowledge respectively. Section five presents the implementation of the interface. Section six presents test cases.

## 2 Domain Knowledge

### 2.1 Ontology

<b>File Name</b>	Domain_ontology
<b>File Size</b>	17 KB
<b>File Date</b>	31/8/2002

```
--ensure_loaded('$KROL/lib/inferenc.('
macro_element_schedule)::
  concept_description& ("
  attributes])
  advice ([
  quantity_during_land_preparation ([])
  quantity_during_first_month ([])
  quantity_during_second_month ([])
  quantity_during_third_month ([])
  quantity_during_forth_month ([])
  quantity_during_first_week ([])
  quantity_during_secon_week ([])
  quantity_during_third_week ([])
  quantity_during_forth_week ([])
  quantity_during_fifth_week ([])
  quantity_during_sixth_week ([])
  quantity_during_seventh_week ([])
  quantity_during_eighth_week ([])
  quantity_during_ninth_week ([])
  quantity_during_tenth_week ([])
  quantity_during_eleventh_week ([])
  quantity_during_twelfth_week ([])
  quantity_during_thirteen_week ([])
  quantity_during_fourteenth_week ([])
  quantity_during_fifteenth_week ([])
  ])
```

```

&([
  type(advice/1, atom&(
    source_of_value(advice/1, [derived(tabulate&([(
      type(quantity_during_land_preparation/1, real&(
        ul(quantity_during_land_preparation/1, 1000&(
          ll(quantity_during_land_preparation/1, 0&(
source_of_value(quantity_during_land_preparation/1, [derived(tabulate
&([(
  type(quantity_during_first_month/1, real&(
    ul(quantity_during_first_month/1, 1000&(
      ll(quantity_during_first_month/1, 0&(
source_of_value(quantity_during_first_month/1, [derived(tabulate&([(
  type(quantity_during_second_month/1, real&(
    ul(quantity_during_second_month/1, 1000&(
      ll(quantity_during_second_month/1, 0&(
source_of_value(quantity_during_second_month/1, [derived(tabulate&([(
  type(quantity_during_third_month/1, real&(
    ul(quantity_during_third_month/1, 1000&(
      ll(quantity_during_third_month/1, 0&(
source_of_value(quantity_during_third_month/1, [derived(tabulate&([(
  type(quantity_during_forth_month/1, real&(
    ul(quantity_during_forth_month/1, 1000&(
      ll(quantity_during_forth_month/1, 0&(
source_of_value(quantity_during_forth_month/1, [derived(tabulate&([(
  type(quantity_during_first_week/1, real&(
    ul(quantity_during_first_week/1, 1000&(
      ll(quantity_during_first_week/1, 0&(
source_of_value(quantity_during_first_week/1, [derived(tabulate&([(
  type(quantity_during_secon_week/1, real&(
    ul(quantity_during_secon_week/1, 1000&(
      ll(quantity_during_secon_week/1, 0&(
source_of_value(quantity_during_secon_week/1, [derived(tabulate&([(
  type(quantity_during_third_week/1, real&(
    ul(quantity_during_third_week/1, 1000&(
      ll(quantity_during_third_week/1, 0&(
source_of_value(quantity_during_third_week/1, [derived(tabulate&([(
  type(quantity_during_forth_week/1, real&(
    ul(quantity_during_forth_week/1, 1000&(
      ll(quantity_during_forth_week/1, 0&(
source_of_value(quantity_during_forth_week/1, [derived(tabulate&([(
  type(quantity_during_fifth_week/1, real&(
    ul(quantity_during_fifth_week/1, 1000&(
      ll(quantity_during_fifth_week/1, 0&(
source_of_value(quantity_during_fifth_week/1, [derived(tabulate&([(
  type(quantity_during_sixth_week/1, real&(

```

```

        ul(quantity_during_sixth_week/1, 1000&(
        ll(quantity_during_sixth_week/1, 0&(
source_of_value(quantity_during_sixth_week/1, [derived(tabulate&(((
        type(quantity_during_seventh_week/1, real&(
        ul(quantity_during_seventh_week/1, 1000&(
        ll(quantity_during_seventh_week/1, 0&(
source_of_value(quantity_during_seventh_week/1, [derived(tabulate&(((
        type(quantity_during_eighth_week/1, real&(
        ul(quantity_during_eighth_week/1, 1000&(
        ll(quantity_during_eighth_week/1, 0&(
source_of_value(quantity_during_eighth_week/1, [derived(tabulate&(((
        type(quantity_during_ninth_week/1, real&(
        ul(quantity_during_ninth_week/1, 1000&(
        ll(quantity_during_ninth_week/1, 0&(
source_of_value(quantity_during_ninth_week/1, [derived(tabulate&(((
        type(quantity_during_tenth_week/1, real&(
        ul(quantity_during_tenth_week/1, 1000&(
        ll(quantity_during_tenth_week/1, 0&(
source_of_value(quantity_during_tenth_week/1, [derived(tabulate&(((
        type(quantity_during_eleventh_week/1, real&(
        ul(quantity_during_eleventh_week/1, 1000&(
        ll(quantity_during_eleventh_week/1, 0&(
source_of_value(quantity_during_eleventh_week/1, [derived(tabulate&(((
        type(quantity_during_twelfth_week/1, real&(
        ul(quantity_during_twelfth_week/1, 1000&(
        ll(quantity_during_twelfth_week/1, 0&(
source_of_value(quantity_during_twelfth_week/1, [derived(tabulate&(((
        type(quantity_during_thirteen_week/1, real&(
        ul(quantity_during_thirteen_week/1, 1000&(
        ll(quantity_during_thirteen_week/1, 0&(
source_of_value(quantity_during_thirteen_week/1, [derived(tabulate&(((
        type(quantity_during_fourteenth_week/1, real&(
        ul(quantity_during_fourteenth_week/1, 1000&(
        ll(quantity_during_fourteenth_week/1, 0&(
source_of_value(quantity_during_fourteenth_week/1, [derived(tabulate
&(((
        type(quantity_during_fifteenth_week/1, real&(
        ul(quantity_during_fifteenth_week/1, 1000&(
        ll(quantity_during_fifteenth_week/1, 0&(
source_of_value(quantity_during_fifteenth_week/1, [derived(tabulate(((
&
        super(fertilizer_schedule(
.{
ammonium_sulphate_schedule)::
        concept_description&(")

```

```

        attributes& ([])
        super (macro_element_schedule(
.{
potassium_sulphate_schedule)::
    concept_description& (")
    attributes& ([])
    super (macro_element_schedule(
.{
phosphoric_acid_schedule)::
    concept_description& (")
    attributes& ([])
    super (macro_element_schedule(
.{
triple_super_phosphate_schedule)::
    concept_description& (")
    attributes& ([])
    super (macro_element_schedule(
.{
super_phosphate_schedule)::
    concept_description& (")
    attributes& ([])
    super (macro_element_schedule(
.{
calcium_nitrate_schedule)::
    concept_description& (")
    attributes ([
    quantity ([])
    application_date ([])
    type (quantity/1, real& (
    ul (quantity/1, 1000& (
    ll (quantity/1, 0& (
    source_of_value (quantity/1, [derived (tabulate& ([[
    type (application_date/1, date& (
    source_of_value (application_date/1, [derived (tabulate& ([[
    necessary (application_date/1& (
    super (macro_element_schedule(
.{
magnesium_sulphate_schedule)::
    concept_description& (")
    attributes ([
    quantity ([])
    type (quantity/1, real& (
    ul (quantity/1, 1000& (
    ll (quantity/1, 0& (
    source_of_value (quantity/1, [derived (tabulate& ([[

```

```

        super(macro_element_schedule(
    .{
nitric_acid_schedule)::
        concept_description&("")
        attributes&([])
        super(macro_element_schedule(
    .{
ammonium_nitrate_schedule)::
        concept_description&("")
        attributes&([])
        super(macro_element_schedule(
    .{
urea_schedule)::
        concept_description&("")
        attributes&([])
        super(macro_element_schedule(
    .{
micro_element_schedule)::
        concept_description&("")
        attributes([
            iron_chelate_quantity([])
            zink_chelate_quantity([])
            manganese_chelate_quantity([])
            copper_chelate_quantity([])
            application_date([])
            advice([])
            application_method([])
            &([
                type(iron_chelate_quantity/1, real&(
                    ul(iron_chelate_quantity/1, 1000&(
                        ll(iron_chelate_quantity/1, 0&(
                            source_of_value(iron_chelate_quantity/1, [derived(tabulate&([(
                                type(zink_chelate_quantity/1, real&(
                                    ul(zink_chelate_quantity/1, 1000&(
                                        ll(zink_chelate_quantity/1, 0&(
                                            source_of_value(zink_chelate_quantity/1, [derived(tabulate&([(
                                                type(manganese_chelate_quantity/1, real&(
                                                    ul(manganese_chelate_quantity/1, 1000&(
                                                        ll(manganese_chelate_quantity/1, 0&(
                                                            source_of_value(manganese_chelate_quantity/1, [derived(tabulate&([(
                                                                type(copper_chelate_quantity/1, real&(
                                                                    ul(copper_chelate_quantity/1, 1000&(
                                                                        ll(copper_chelate_quantity/1, 0&(
                                                                            source_of_value(copper_chelate_quantity/1, [derived(tabulate&([(
                                                                                type(application_date/1, date&(

```

```

    source_of_value(application_date/1, [derived(tabulate& [(
    type(advice/1, atom&(
    source_of_value(advice/1, [derived(tabulate& [(
    type(application_method/1, nominal&(
    prompt(application_method/1& ([ ] "
    legal(application_method/1)                'ÑÏ æÑÞì'    & ([
    super(fertilizer_schedule(
.{
micro_element)::
    concept_description& ("
    attributes])
    & ([
    super(fertilizer(
.{
macro_element)::
    concept_description& ("
    attributes])
    nitrogen_fertilizer_name( [ ] )
    & ([
    type(nitrogen_fertilizer_name/1, nominal&(
    source_of_value(nitrogen_fertilizer_name/1,
    [database(tomatexdb,soil_analysis_table( 18263,18265,18267,18271,
    18272,_18273,_18275,_18277,_18279,_18280,_18281,_18282,_18283,_18284,
    Nfqu,_18288),Nfqu)]) &
    prompt(nitrogen_fertilizer_name/1& ([ ] '
    legal(nitrogen_fertilizer_name/1)
    , , , , , , , , , ) &
    super(fertilizer(
.{
ammonium_sulphate)::
    concept_description& ("
    attributes ([
    ratio_of_n ([ ]
    usefullness_coefficient( [ ]
    ]) &
    type(ratio_of_n/1, real&(
    ul(ratio_of_n/1, 0.20&(
    ll(ratio_of_n/1, 0&(
    type(usefullness_coefficient/1, real&(
    ul(usefullness_coefficient/1, 1.3&(
    ll(usefullness_coefficient/1, 0&(
    super(macro_element(
.{
urea :: {
    concept_description& ("
    attributes ([
    ratio_of_n ([ ]

```

```

        usefulness_coefficient([])
    ])&
    type(ratio_of_n/1, real&(
    ul(ratio_of_n/1, 5&(
    ll(ratio_of_n/1, 0&(
    prompt(ratio_of_n/1& ([] "
    type(usefulness_coefficient/1, real&(
    ul(usefulness_coefficient/1, 5&(
    ll(usefulness_coefficient/1, 0&(
    prompt(usefulness_coefficient/1& ([] "
    super (macro_element(
    .{

phosphoric_acid_75 :: {
    concept_description& ("
    attributes ([
    ratio_of_p ([])
    usefulness_coefficient([])
    ])&
    type(ratio_of_p/1, real&(
    ul(ratio_of_p/1, 5&(
    ll(ratio_of_p/1, 0&(
    prompt(ratio_of_p/1& ([] "
    type(usefulness_coefficient/1, real&(
    ul(usefulness_coefficient/1, 5&(
    ll(usefulness_coefficient/1, 0&(
    prompt(usefulness_coeffeint/1& ([] "
    super (macro_element(
    .{

super_phosphate)::
    concept_description& ("
    attributes])
    ratio_of_p ([])
    usefulness_coefficient([])
    ])&
    type(ratio_of_p/1, real&(
    ul(ratio_of_p/1, 5&(
    ll(ratio_of_p/1, 0&(
    prompt(ratio_of_p/1& ([] "
    type(usefulness_coefficient/1, real&(
    ul(usefulness_coefficient/1, 5&(
    ll(usefulness_coefficient/1, 0&(
    prompt(usefulness_coefficient/1& ([] "
    super (macro_element(
    }.

triple_super_phosphate :: {

```

```

concept_description&("")
attributes([
usefulness_coefficient([])
ratio_of_p([])
])&
type(usefulness_coefficient/1, real)&
ul(usefulness_coefficient/1, 5)&
ll(usefulness_coefficient/1, 0)&
prompt(usefulness_coefficient/1, [])&
type(ratio_of_p/1, real&
ul(ratio_of_p/1, 5)&
ll(ratio_of_p/1, 0)&
prompt(ratio_of_p/1, [])&
super(macro_element)
}.

```

```

ammonium_nitrate)::
concept_description&("")
attributes([
ratio_of_n([])
])&
type(ratio_of_n/1, real&
ul(ratio_of_n/1, 5)&
ll(ratio_of_n/1, 0)&
prompt(ratio_of_n/1& ([] "
super(macro_element(

```

```

.{
clacium_nitrate)::
concept_description&("")
attributes])
ratio_of_ca([])
ratio_of_n([])
usefulness_coefficient([])
&([
type(ratio_of_ca/1, real&
ul(ratio_of_ca/1, 5)&
ll(ratio_of_ca/1, 0)&
prompt(ratio_of_ca/1& ([] "
type(ratio_of_n/1, real&
ul(ratio_of_n/1, 5)&
ll(ratio_of_n/1, 0)&
prompt(ratio_of_n/1& ([] "
type(usefulness_coefficient/1, real&
ul(usefulness_coefficient/1, 5)&
ll(usefulness_coefficient/1, 0)&
prompt(usefulness_coefficient/1& ([] "
super(macro_element(

```

```

.{

```



```

nitric_acid)::
    concept_description&("")
    attributes])
    ratio_of_n([])
    &([
    type(ratio_of_n/1, real&(
    ul(ratio_of_n/1, 5&(
    ll(ratio_of_n/1, 0&(
    prompt(ratio_of_n/1&([] "
    super(macro_element(
.{
potassium_sulphate)::
    concept_description&("")
    attributes])
    ratio_of_k([])
    usefulness_coefficient([])
    &([
    type(ratio_of_k/1, real&(
    ul(ratio_of_k/1, 5&(
    ll(ratio_of_k/1, 0&(
    prompt(ratio_of_k/1&([] "
    type(usefulness_coefficient/1, real&(
    ul(usefulness_coefficient/1, 5&(
    ll(usefulness_coefficient/1, 0&(
    prompt(usefulness_coefficient/1&([] "
    super(macro_element(
.{
magnesium_sulphate)::
    concept_description&("")
    attributes])
    usefulness_coefficient([])
    ratio_of_mg([])
    &([
    type(usefulness_coefficient/1, real&(
    ul(usefulness_coefficient/1, 5&(
    ll(usefulness_coefficient/1, 0&(
    prompt(usefulness_coefficient/1&([] "
    type(ratio_of_mg/1, real&(
    ul(ratio_of_mg/1, 5&(
    ll(ratio_of_mg/1, 0&(
    prompt(ratio_of_mg/1&([] "
    super(macro_element(
.{
iron_chelate)::
    concept_description&("")

```

```

attributes])
ratio_of_fe ([])
usefulness_coefficient ([])
& ([
type(ratio_of_fe/1, real&(
ul(ratio_of_fe/1, 5&(
ll(ratio_of_fe/1, 0&(
prompt(ratio_of_fe/1& ([" "
type(usefulness_coefficient/1, real&(
ul(usefulness_coefficient/1, 5&(
ll(usefulness_coefficient/1, 0&(
prompt(usefulness_coefficient/1& ([" "
super (micro_element(
.{
zinc_chelate)::
concept_description& (")
attributes])
usefulness_coefficient ([])
ratio_of_zn ([])
& ([
type(usefulness_coefficient/1, real&(
ul(usefulness_coefficient/1, 5&(
ll(usefulness_coefficient/1, 0&(
prompt(usefulness_coefficient/1& ([" "
type(ratio_of_zn/1, real&(
ul(ratio_of_zn/1, 5&(
ll(ratio_of_zn/1, 0&(
prompt(ratio_of_zn/1& ([" "
super (micro_element(
.{
manganese_chelate)::
concept_description& (")
attributes])
ratio_of_mn ([])
usefulness_coefficient ([])
& ([
type(ratio_of_mn/1, real&(
ul(ratio_of_mn/1, 5&(
ll(ratio_of_mn/1, 0&(
prompt(ratio_of_mn/1& ([" "
type(usefulness_coefficient/1, real&(
ul(usefulness_coefficient/1, 5&(
ll(usefulness_coefficient/1, 0&(
prompt(usefulness_coefficient/1& ([" "
super (micro_element(

```

```

.{
copper_chelate)::
    concept_description&("")
    attributes])
    usefulness_coefficient ([])
    ratio_of_cu([])
    &([
    type(usefulness_coefficient/1, real&(
    ul(usefulness_coefficient/1, 5&(
    ll(usefulness_coefficient/1, 0&(
    prompt(usefulness_coefficient/1& ([] "
    type(ratio_of_cu/1, real&(
    ul(ratio_of_cu/1, 5&(
    ll(ratio_of_cu/1, 0&(
    prompt(ratio_of_cu/1& ([] "
    super(micro_element(
.{
environment)::
    concept_description&("")
    attributes])
    ca_quantity ([])
    n_quantity ([])
    p_quantity ([])
    k_quantity ([])
    mg_quantity ([])
    fe_quantity ([])
    zn_quantity ([])
    mn_quantity ([])
    cu_quantity([])
    &([
    type(ca_quantity/1, real&(
    ul(ca_quantity/1, 1000&(
    ll(ca_quantity/1, 0&(
    source_of_value(ca_quantity/1,
[derived(calculate_element_in_enviroment& ([[
    type(n_quantity/1, real&(
    ul(n_quantity/1, 1000&(
    ll(n_quantity/1, 0&(
    source_of_value(n_quantity/1,
[derived(calculate_element_in_enviroment& ([[
    type(p_quantity/1, real&(
    ul(p_quantity/1, 1000&(
    ll(p_quantity/1, 0&(
    source_of_value(p_quantity/1,
[derived(calculate_element_in_enviroment& ([[
    type(k_quantity/1, real&(

```

```

        ul(k_quantity/1, 1000&(
        ll(k_quantity/1, 0&(
        source_of_value(k_quantity/1,
[derived(calculate_element_in_enviroment& ([[
        type(mg_quantity/1, real&(
        ul(mg_quantity/1, 1000&(
        ll(mg_quantity/1, 0&(
        source_of_value(mg_quantity/1,
[derived(calculate_element_in_enviroment& ([[
        type(fe_quantity/1, real&(
        ul(fe_quantity/1, 1000&(
        ll(fe_quantity/1, 0&(
        source_of_value(fe_quantity/1,
[derived(calculate_element_in_enviroment& ([[
        type(zn_quantity/1, real&(
        ul(zn_quantity/1, 1000&(
        ll(zn_quantity/1, 0&(
        source_of_value(zn_quantity/1,
[derived(calculate_element_in_enviroment& ([[
        type(mn_quantity/1, real&(
        ul(mn_quantity/1, 1000&(
        ll(mn_quantity/1, 0&(
        source_of_value(mn_quantity/1,
[derived(calculate_element_in_enviroment& ([[
        type(cu_quantity/1, real&(
        ul(cu_quantity/1, 1000&(
        ll(cu_quantity/1, 0&(
        source_of_value(cu_quantity/1,
[derived(calculate_element_in_enviroment& ([[
        super(domain_class(
.{

dripping_irrigation_macro_element)::
    concept_description&("")
    attributes])
    phosphor_fertilizer_name([])
    &([
        type(phosphor_fertilizer_name/1, nominal&(
        source_of_value(phosphor_fertilizer_name/1,
[database(tomatexdb,soil_analysis_table(_18263,_18265,_18267,_18271,_
18272,_18273,_18275,_18277,_18279,_18280,_18281,_18282,_18283,_18284,
_18286,Pfqu),Pfqu& ([[
        %prompt(phosphor_fertilizer_name/1& ([) '
        legal(phosphor_fertilizer_name/1]
        ,
        ,
        ,
        ,
        ,
        ,

    &([

```

```

        super (macro_element(
.{
flooding_irrigation_macro_element)::
    concept_description& (')
    attributes])
    phosphor_fertilizer_name([])
    & ([
        type (phosphor_fertilizer_name/1, nominal& (
        source_of_value (phosphor_fertilizer_name/1,
[database (tomatexdb, soil_analysis_table (_18263, _18265, _18267, _18271, _
18272, _18273, _18275, _18277, _18279, _18280, _18281, _18282, _18283, _18284,
_18286, Pfqu), Pfqu& ((
        %prompt (phosphor_fertilizer_name/1& ([] '
        legal (phosphor_fertilizer_name/1]
        '
        '
        '
    & ([
        super (macro_element(
.{

```

## 2.2 Domain Models

<b>File Name</b>	rules
<b>File Size</b>	47 KB
<b>File Date</b>	1/9/2002

```

-:use_module (library (lists), [memberchk/2.([
-:ensure_loaded ('$KROL/lib/rule_exp.(

```

%This is the assessment model

### Assessment model

```

estimate)::
r1 ([ cultivation_capability (no) in plantation] if
    name (bean) in plant
    ec (_2308) in soil,      : (_ (3.6 < 2308
    eciw (_2725) in water,   : (_ & (2.4 < 2725
r2 ([ cultivation_capability (yes) in plantation] if
    name (bean) in plant
    ec (_4185) in soil,      : (_ (3.6 >= 4185
    eciw (_4602) in water,   : (_ & (2.4 >= 4602

```

%This is the prediction model

### prediction model

```

conclude)::

```

```

r1([ optimum_yield(7)in plantation]) if
    name(bean) in plant
    )type('    ')in farm
    type('    ')in farm
    &
r2([ optimum_yield(20)in plantation]) if
    name(bean) in plant
    type('    ')in farm&
super(rules(
.{
deduce}::
r1([ predict_yield_factor(1)in plant]) if
    name(bean) in plant
    ec(_64510) in soil,      :(_(1>=64510
    eciw(_64512) in water,  :(_&(1>=64512

r2([ predict_yield_factor(0.9)in plant]) if
    name(bean) in plant
    ec(_64093) in soil,      :(_(1<64093
    ec(_64094) in soil,      :(_(1.5>=64094
    eciw(_64095) in water,  :(_&(1>=64095

r3([ predict_yield_factor(0.75)in plant]) if
    name(bean) in plant
    ec(_66000) in soil,      :(_(2.3>=66000
    ec(_66414) in soil,      :(_(1.5<66414
    eciw(_66831) in water,  :(_&(1>=66831

r4([ predict_yield_factor(0.75)in plant]) if
    name(bean) in plant
    ec(_68743) in soil,      :(_(2.3>=68743
    eciw(_69160) in water,  :(_(1<69160
    eciw(_69162) in water,  :(_&(1.5>=69162

r5([ predict_yield_factor(0.5)in plant]) if
    name(bean) in plant
    eciw(_71485) in water,  :(_&(1.5<71485

r6([ predict_yield_factor(0.5)in plant]) if
    name(bean) in plant
    ec(_72947) in soil,      :(_&(2.3<72947

super(rules(
.{
%End of model
%This is the specification model

```

## specification model

```
determine)::
r1([ ca_quantity(70)in soil
     cu_quantity(0)in soil
     fe_quantity(2)in soil
     k_quantity(10)in soil
     mg_quantity(20)in soil
     mn_quantity(3)in soil
     n_quantity(4)in soil
     p_quantity(15)in soil
     zn_quantity(1)in soil]) if
type(fine) in soil&

r2([ ca_quantity(420)in soil
     cu_quantity(1.5)in soil
     fe_quantity(15)in soil
     k_quantity(400)in soil
     mg_quantity(127)in soil
     mn_quantity(12)in soil
     n_quantity(26)in soil
     p_quantity(95)in soil
     zn_quantity(2)in soil]) if
type(medium) in soil&

r3([ ca_quantity(140)in soil
     cu_quantity(0.4)in soil
     fe_quantity(10)in soil
     k_quantity(200)in soil
     mg_quantity(55)in soil
     mn_quantity(8)in soil
     n_quantity(12)in soil
     p_quantity(40)in soil
     zn_quantity(1)in soil]) if
type(coarse) in soil&

super(rules(
.{
%End of model
%This is the calculation model
```

## calculation model

```
calculate_element_in_plant)::
r1([ n_content(NC)in bean]) if
name(bean) in plant
elements(n) in bean
bean :: get_value(n_ratio(NR((
```

```

plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(
):NC is (NR * 1000 * Y * PY&((

r2([ p_content(PC)in bean]) if
name(bean) in plant
elements(p) in bean
bean :: get_value(p_ratio(PR(
plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(
):PC is (PR * 1000 * Y * PY&((

r3([ k_content(KC)in bean]) if
name(bean) in plant
elements(k) in bean
bean :: get_value(k_ratio(KR(
plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(
):KC is (KR * 1000 * Y * PY&((

r4([ ca_content(CAC)in bean]) if
name(bean) in plant
elements(ca) in bean
bean :: get_value(ca_ratio(CAR(
plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(
):CAC is (CAR * 1000 * Y * PY&((

r6([ fe_content(FEC)in bean]) if
name(bean) in plant
elements(fe) in bean
bean :: get_value(fe_ratio(FER(
plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(
):FEC is (FER * 1000 * Y * PY&((

r7([ zn_content(ZNC)in bean]) if
name(bean) in plant
elements(zn) in bean
bean :: get_value(zn_ratio(ZNR(
plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(
):ZNC is (ZNR * 1000 * Y * PY&((

r8([ mn_content(MNC)in bean]) if
name(bean) in plant
elements(mn) in bean
bean :: get_value(mn_ratio(MNR(
plantation :: get_value(optimum_yield(Y(
plant :: get_value(predict_yield_factor(PY(

```



```

):MNC is (MNR * 1000 * Y * PY&((
r9([ mg_content(MGC)in bean]) if
    name(bean) in plant
    elements(mg) in bean
    bean :: get_value(mg_ratio(MGR ((
    plantation :: get_value(optimum_yield(Y ((
    plant :: get_value(predict_yield_factor(PY ((
    ):MGC is (MGR * 1000 * Y * PY&((
calculate_element_in_enviroment)::
r1([ ca_quantity(CAQ)in environment]) if
    type(_86365) in farm, :(_(' '=\86365
    name(bean) in plant
    elements(ca) in bean
    soil :: get_value(ca_quantity(SCaQ ((
    water :: get_value(ca_quantity(WCaQ ((
    water :: get_value(qty(WQ ((
    organic_manure :: get_value(name(M ((
    M :: get_value(ratio_of_ca(MRCa ((
    M :: get_value(quantity(MQ ((
    M :: get_value(weight(MW ((
    ):CAQ is (SCaQ + (WCaQ * WQ /1000) + (MRCa * (MQ/4) * MW&(((

r11([ca_quantity(CAQ)in environment]) if
    type(' ')in farm
    name(bean) in plant
    elements(ca) in bean
    soil :: get_value(ca_quantity(SCaQ ((
    water :: get_value(ca_quantity(WCaQ ((
    water :: get_value(qty(WQ ((
    farm :: get_value(area(A ((
    organic_manure :: get_value(name(M ((
    M :: get_value(ratio_of_ca(MRCa ((
    M :: get_value(quantity(MQ ((
    M :: get_value(weight(MW ((
):CAQ is (SCaQ + (WCaQ * WQ /1000) + (MRCa * ((MQ/4) * 4200/A) * MW&(((
r2([ n_quantity(NQ)in environment]) if
    name(bean) in plant
    type(' ')in farm
    farm :: get_value(area(A ((
    elements(n) in bean
    soil :: get_value(n_quantity(SNQ ((
    water :: get_value(n_quantity(WNQ ((
    water :: get_value(qty(WQ ((
    organic_manure :: get_value(name(M ((
    M :: get_value(ratio_of_n(MRN ((
    M :: get_value(quantity(MQ ((

```

```

M :: get_value(weight(MW(
):NQ is (SNQ + (WNQ * WQ /1000) + (MRN * ((MQ/4) * 4200/A) * MW
&(((
r21([ n_quantity(NQ)in environment]) if
name(bean) in plant
type(_86365) in farm, :(_(' '==\86365
elements(n) in bean
soil :: get_value(n_quantity(SNQ(
water :: get_value(n_quantity(WNQ(
water :: get_value(qty(WQ(
organic_manure :: get_value(name(M(
M :: get_value(ratio_of_n(MRN(
M :: get_value(quantity(MQ(
M :: get_value(weight(MW(
):NQ is (SNQ + (WNQ * WQ /1000) + (MRN * (MQ/4) * MW&(((
r3([ p_quantity(PQ)in environment]) if
name(bean) in plant
type(_86365) in farm, :(_(' '==\86365
elements(p) in bean
soil :: get_value(p_quantity(SPQ(
water :: get_value(p_quantity(WPQ(
water :: get_value(qty(WQ(
organic_manure :: get_value(name(M(
M :: get_value(ratio_of_p(MRP(
M :: get_value(quantity(MQ(
M :: get_value(weight(MW(
):PQ is (SPQ + (WPQ * WQ /1000) + (MRP * (MQ/4) * MW&(((
r31([ p_quantity(PQ)in environment]) if
name(bean) in plant
type(' ')in farm
farm :: get_value(area(A(
elements(p) in bean
soil :: get_value(p_quantity(SPQ(
water :: get_value(p_quantity(WPQ(
water :: get_value(qty(WQ(
organic_manure :: get_value(name(M(
M :: get_value(ratio_of_p(MRP(
M :: get_value(quantity(MQ(
M :: get_value(weight(MW(
):PQ is (SPQ + (WPQ * WQ /1000) + (MRP * ((MQ/4) * 4200/A) * MW&(((
r4([ k_quantity(KQ)in environment]) if
name(bean) in plant
type(_86365) in farm, :(_(' '==\86365
elements(k) in bean
soil :: get_value(k_quantity(SKQ(
water :: get_value(k_quantity(WKQ(

```

```

water :: get_value(qty(WQ))
organic_manure :: get_value(name(M))
M :: get_value(ratio_of_k(MRK))
M :: get_value(quantity(MQ))
M :: get_value(weight(MW))
):KQ is (SKQ + (WKQ * WQ /1000) + (MRK * (MQ/4) * MW)&(((
r41([ k_quantity(KQ)in environment]) if
name(bean) in plant
type(' ')in farm
farm :: get_value(area(A))
elements(k) in bean
soil :: get_value(k_quantity(SKQ))
water :: get_value(k_quantity(WKQ))
water :: get_value(qty(WQ))
organic_manure :: get_value(name(M))
M :: get_value(ratio_of_k(MRK))
M :: get_value(quantity(MQ))
M :: get_value(weight(MW))
):KQ is (SKQ + (WKQ * WQ /1000) + (MRK * ((MQ/4) * 4200/A) * MW
&(((
r5([ mg_quantity(MgQ)in environment]) if
name(bean) in plant
type(_86365) in farm, :(_(' '==\86365
elements(mg) in bean
soil :: get_value(mg_quantity(SMgQ))
water :: get_value(mg_quantity(WMgQ))
water :: get_value(qty(WQ))
organic_manure :: get_value(name(M))
M :: get_value(ratio_of_mg(MRMg))
M :: get_value(quantity(MQ))
M :: get_value(weight(MW))
):MgQ is (SMgQ + (WMgQ * WQ /1000) + (MRMg * (MQ/4) * MW&(((

r51([ mg_quantity(MgQ)in environment]) if
name(bean) in plant
type(' ')in farm
farm :: get_value(area(A))
elements(mg) in bean
soil :: get_value(mg_quantity(SMgQ))
water :: get_value(mg_quantity(WMgQ))
water :: get_value(qty(WQ))
organic_manure :: get_value(name(M))
M :: get_value(ratio_of_mg(MRMg))
M :: get_value(quantity(MQ))
M :: get_value(weight(MW))
):MgQ is (SMgQ + (WMgQ * WQ /1000) + (MRMg * ((MQ/4) * 4200/A) * MW&(((

```

```

r6([ fe_quantity(FeQ)in environment]) if
name(bean) in plant
elements(fe) in bean
soil :: get_value(fe_quantity(SFeQ ((
water :: get_value(fe_quantity(WFeQ ((
water :: get_value(qty(WQ ((
):FeQ is (SFeQ + (WFeQ * WQ /1000&(((
r7([ zn_quantity(ZnQ)in environment]) if
name(bean) in plant
elements(zn) in bean
soil :: get_value(zn_quantity(SZnQ ((
water :: get_value(zn_quantity(WZnQ ((
water :: get_value(qty(WQ ((
):ZnQ is (SZnQ + (WZnQ * WQ /1000&(((

r8([ mn_quantity(MnQ)in environment]) if

name(bean) in plant
elements(mn) in bean
soil :: get_value(mn_quantity(SMnQ ((
water :: get_value(mn_quantity(WMnQ ((
water :: get_value(qty(WQ ((
):MnQ is (SMnQ + (WMnQ * WQ /1000&(((
r9([ cu_quantity(CuQ)in environment]) if
name(bean) in plant
elements(cu) in bean
soil :: get_value(cu_quantity(SCuQ ((
water :: get_value(cu_quantity(WCuQ ((
water :: get_value(qty(WQ ((
):CuQ is (SCuQ + (WCuQ * WQ /1000&(((

super(rules(
.{
calculate_fertilizer_quality)::
r1([ quantity(Qty)in super_phosphate]) if
name(bean) in plant
elements(p) in bean
bean :: get_value(p_content(XPC ((
environment :: get_value(p_quantity(EPQ ((
super_phosphate :: get_value(ratio_of_p(SPRP ((
super_phosphate :: get_value(usefulness_coefficient(SPUC ((
):Qty is (XPC - EPQ) * (1 / SPRP ) * SPUC&(
r3([ quantity(Qty)in phosphoric_acid_75]) if
name(bean) in plant
elements(p) in bean
)type(' ')in farm

```

```

type(' ')in farm (
bean :: get_value(p_content(XPC ((
environment :: get_value(p_quantity(EPQ ((
phosphoric_acid_75 :: get_value(ratio_of_p(SPRP ((
phosphoric_acid_75 :: get_value(usefulness_coefficient(SPUC ((
):Qty is (XPC - EPQ) * (1 / SPRP ) * SPUC&(
r4([ quantity(Qty)in clacium_nitrate]) if
name(bean) in plant
elements(ca) in bean
bean :: get_value(ca_content(XCaC ((
environment :: get_value(ca_quantity(ECaQ ((
clacium_nitrate :: get_value(ratio_of_ca(CNRCa ((
clacium_nitrate :: get_value(usefulness_coefficient(CNUC ((
):Qty is (XCaC - ECaQ) * (1 / CNRCa ) * CNUC&(
r5([ quantity(Qty)in urea]) if
name(bean) in plant
elements(n) in bean
nitrogen_fertilizer_name(' ')in macro_element
bean :: get_value(n_content(XNC ((
environment :: get_value(n_quantity(ENQ ((
clacium_nitrate :: get_value(quantity(CaNQ ((
clacium_nitrate :: get_value(ratio_of_n(CaNRN ((
urea :: get_value(ratio_of_n(URN ((
urea :: get_value(usefulness_coefficient(UUC ((
):Qty is ((XNC - ENQ) - CaNQ * CaNRN) * (1 / URN ) * UUC&(
r6([ quantity(Qty)in ammonium_nitrate]) if
name(bean) in plant
elements(n) in bean
nitrogen_fertilizer_name(' ')in macro_element
bean :: get_value(n_content(XNC ((
environment :: get_value(n_quantity(ENQ ((
clacium_nitrate :: get_value(quantity(CaNQ ((
clacium_nitrate :: get_value(ratio_of_n(CaNRN ((
ammonium_nitrate :: get_value(ratio_of_n(ANRN ((
ammonium_nitrate :: get_value(usefulness_coefficient(ANUC ((
):Qty is ((XNC - ENQ) - CaNQ * CaNRN) * (1 / ANRN ) * ANUC&(
r11([ quantity(Qty)in potassium_sulphate]) if
name(bean) in plant
elements(k) in bean
bean :: get_value(k_content(XKC ((
environment :: get_value(k_quantity(EKQ ((
potassium_sulphate :: get_value(ratio_of_k(PSRK ((
potassium_sulphate :: get_value(usefulness_coefficient(PSUC ((
):Qty is (XKC - EKQ) * (1 / PSRK ) * PSUC&(
r12([ quantity(Qty)in magnesium_sulphate]) if
name(bean) in plant

```

```

elements(mg) in bean
bean :: get_value(mg_content(XMgC ((
environment :: get_value(mg_quantity(EMgQ ((
magnesium_sulphate :: get_value(ratio_of_mg(MSRMg ((
magnesium_sulphate :: get_value(usefulness_coefficient(MSUC ((
):Qty is (XMgC - EMgQ) * (1 / MSR Mg ) * MSUC&(
r13([ quantity(Qty)in iron_chelate]) if
name(bean) in plant
elements(fe) in bean
bean :: get_value(fe_content(XFeC ((
environment :: get_value(fe_quantity(EFeQ ((
iron_chelate :: get_value(ratio_of_fe(ICRFe ((
iron_chelate :: get_value(usefulness_coefficient(ICUC ((
):Qty is (XFeC - EFeQ) * (1 / ICRFe ) * ICUC&(
r14([ quantity(Qty)in zinc_chelate]) if
name(bean) in plant
elements(zn) in bean
bean :: get_value(zn_content(XZnC ((
environment :: get_value(zn_quantity(EZnQ ((
zinc_chelate :: get_value(ratio_of_zn(ZCRZn ((
zinc_chelate :: get_value(usefulness_coefficient(ZCUC ((
):Qty is (XZnC - EZnQ) * (1 / ZCRZn ) * ZCUC&(
r15([ quantity(Qty)in manganese_chelate]) if
name(bean) in plant
elements(mn) in bean
bean :: get_value(mn_content(XMnC ((
environment :: get_value(mn_quantity(EMnQ ((
manganese_chelate :: get_value(ratio_of_mn(MCRMn ((
manganese_chelate :: get_value(usefulness_coefficient(MCUC ((
r16([ quantity(Qty)in copper_chelate]) if
name(bean) in plant
elements(cu) in bean
bean :: get_value(cu_content(XCuC ((
environment :: get_value(cu_quantity(ECuQ ((
copper_chelate :: get_value(ratio_of_cu(CCRCu ((
copper_chelate :: get_value(usefulness_coefficient(CCUC ((
):Qty is (XCuC - ECuQ) * (1 / CCRCu ) * CCUC&(
super(rules(
.{
%End of model
%This is the schedula model

```

### schedula model

```

tabulate)::
r1([ advice('          ')in micro_element_schedule
iron_chelate_quantity(Vv1) in micro_element_schedule

```

```

zink_chelate_quantity(Vv2) in micro_element_schedule
manganese_chelate_quantity(Vv3) in micro_element_schedule
quantity(Vv4) in clacium_nitrate_schedule
application_date(Vv5) in micro_element_schedule]) if
name(bean) in plant
:eval_rule_exp(quantity of iron_chelate/2, Vv1(
:eval_rule_exp(quantity of zinc_chelate/2, Vv2(
:eval_rule_exp(quantity of manganese_chelate/2, Vv3(
:eval_rule_exp(quantity of clacium_nitrate/2, Vv4(
type(' ')in farm
type(coarse) in soil
current_planting :: get(date(DD ((
:plus_date_days(DD, 30, Vv5&(
r2([ advice(' ')in micro_element_schedule
iron_chelate_quantity(Vv1) in micro_element_schedule
zink_chelate_quantity(Vv2) in micro_element_schedule
manganese_chelate_quantity(Vv3) in micro_element_schedule
quantity(C) in clacium_nitrate_schedule
application_date(Vv5) in micro_element_schedule]) if
name(bean) in plant
):C is 0(
:eval_rule_exp(quantity of iron_chelate/2, Vv1(
:eval_rule_exp(quantity of zinc_chelate/2, Vv2(
:eval_rule_exp(quantity of manganese_chelate/2, Vv3(
type(_86365) in farm, :(_(' '==\86365
type(_86366) in soil, :(_==\86366coarse(
current_planting :: get(date(DD ((
:plus_date_days(DD, 30, Vv5&(
r3([ advice(' ')in micro_element_schedule
iron_chelate_quantity(V1) in micro_element_schedule
zink_chelate_quantity(V2) in micro_element_schedule
manganese_chelate_quantity(V3) in micro_element_schedule
quantity(V4) in clacium_nitrate_schedule
application_date(Vv5) in micro_element_schedule]) if
name(bean) in plant
type(' ')in farm
type(coarse) in soil
current_planting :: get(date(DD ((
:plus_date_days(DD, 30, Vv5(
tunnel :: get(area(A((
:eval_rule_exp(quantity of iron_chelate/2, Vv1(
):V1 is (Vv1 * A)/4200(
:eval_rule_exp(quantity of zinc_chelate/2, Vv2(
):V2 is (Vv2 * A)/4200(
:eval_rule_exp(quantity of manganese_chelate/2, Vv3(

```

```

):V3 is (Vv3 * A)/4200 (
:eval_rule_exp(quantity of clacium_nitrate/2, Vv4 (
):V4 is (Vv4 * A)/4200&
r4([ advice('          ')in micro_element_schedule
iron_chelate_quantity(V1) in micro_element_schedule
zink_chelate_quantity(V2) in micro_element_schedule
manganese_chelate_quantity(V3) in micro_element_schedule
quantity(0) in clacium_nitrate_schedule
application_date(Vv5) in micro_element_schedule]) if
name(bean) in plant
type('  ')in farm
type(_86365) in soil,  :(_==\86365coarse(
current_planting :: get(date(DD ((
:plus_date_days(DD, 30, Vv5 (
tunnel :: get(area(A ((
:eval_rule_exp(quantity of iron_chelate/2, Vv1 (
):V1 is (Vv1 * A)/4200 (
:eval_rule_exp(quantity of zinc_chelate/2, Vv2 (
):V2 is (Vv2 * A)/4200 (
:eval_rule_exp(quantity of manganese_chelate/2, Vv3 (
):V3 is (Vv3 * A)/4200&
r5([ advice('          ')in
urea_schedule
quantity_during_land_prepreation(Vv1) in urea_schedule
quantity_during_first_month(Vv2) in urea_schedule
quantity_during_second_month(Vv3) in urea_schedule]) if
name(bean) in plant
:eval_rule_exp(quantity of urea*0.25, Vv1 (
:eval_rule_exp(quantity of urea*0.5, Vv2 (
:eval_rule_exp(quantity of urea*0.25, Vv3 (
type('  ')in farm
nitrogen_fertilizer_name('  ')in macro_element&
r6([ advice('          ')in
ammonium_nitrate_schedule
quantity_during_land_prepreation(Vv1) in ammonium_nitrate_schedule
quantity_during_first_month(Vv2) in ammonium_nitrate_schedule
quantity_during_second_month(Vv3) in ammonium_nitrate_schedule]) if
name(bean) in plant
:eval_rule_exp(quantity of ammonium_nitrate*0.25, Vv1 (
:eval_rule_exp(quantity of ammonium_nitrate*0.5, Vv2 (
:eval_rule_exp(quantity of ammonium_nitrate*0.25, Vv3 (
type('  ')in farm
nitrogen_fertilizer_name('  ')in macro_element&
r7([ advice('          ')in
ammonium_sulphate_schedule
quantity_during_land_prepreation(Vv1) in ammonium_sulphate_schedule

```



```

quantity_during_first_month(Vv2) in ammonium_sulphate_schedule
quantity_during_second_month(Vv3) in ammonium_sulphate_schedule]) if
name(bean) in plant
:eval_rule_exp(quantity of ammonium_sulphate*0.25, Vv1 (
:eval_rule_exp(quantity of ammonium_sulphate*0.5, Vv2 (
:eval_rule_exp(quantity of ammonium_sulphate*0.25, Vv3 (
type('      ')in farm

nitrogen_fertilizer_name('      ')in macro_element&
r8([ advice('      ')in super_phosphate_schedule
quantity_during_land_preparation(Vv1) in super_phosphate_schedule
quantity_during_first_month(Vv2) in super_phosphate_schedule])
if
:eval_rule_exp(quantity of super_phosphate*0.75, Vv1 (
:eval_rule_exp(quantity of super_phosphate*0.25, Vv2 (
name(bean) in plant
type('      ')in farm&
r9([ advice('      ')in
potassium_sulphate_schedule
quantity_during_first_month(Vv1) in potassium_sulphate_schedule
quantity_during_second_month(Vv2) in potassium_sulphate_schedule]) if
:eval_rule_exp(quantity of potassium_sulphate*0.5, Vv1 (
:eval_rule_exp(quantity of potassium_sulphate*0.5, Vv2 (
name(bean) in plant
type('      ')in farm&
r10([ advice('      ')in
magnesium_sulphate_schedule
quantity(Vv1) in magnesium_sulphate_schedule]) if
:eval_rule_exp(quantity of magnesium_sulphate* 0.5, Vv1 (
type(_86365) in farm, :(_(' '==\86365
type(coarse) in soil
name(bean) in plant&
r11([ advice('      ')in
magnesium_sulphate_schedule
quantity(V1) in magnesium_sulphate_schedule]) if
type('      ')in farm
type(coarse) in soil
name(bean) in plant
tunnel :: get(area(A(
:eval_rule_exp(quantity of magnesium_sulphate* 0.5, Vv1 (
):V1 is (Vv1 * A)/4200&
r12([ advice('      ')in urea_schedule
quantity_during_land_preparation(Vv1) in urea_schedule
quantity_during_first_week(0) in urea_schedule
quantity_during_third_week(Vv4) in urea_schedule
quantity_during_forth_week(Vv5) in urea_schedule
quantity_during_fifth_week(Vv6) in urea_schedule

```

```

quantity_during_sixth_week(Vv7) in urea_schedule
quantity_during_seventh_week(Vv8) in urea_schedule
quantity_during_eighth_week(Vv9) in urea_schedule
quantity_during_ninth_week(Vv10) in urea_schedule
quantity_during_tenth_week(Vv11) in urea_schedule
quantity_during_eleventh_week(Vv12) in urea_schedule
quantity_during_twelfth_week(Vv12) in urea_schedule
quantity_during_thirteen_week(Vv12) in urea_schedule]) if
name(bean) in plant
type(' ')in farm
nitrogen_fertilizer_name(' ')in macro_element
:eval_rule_exp(quantity of urea*0.25, Vv1 (
:eval_rule_exp(quantity of urea*0.07, Vv4 (
:eval_rule_exp(quantity of urea*0.07, Vv5 (
:eval_rule_exp(quantity of urea*0.07, Vv6 (
:eval_rule_exp(quantity of urea*0.07, Vv7 (
:eval_rule_exp(quantity of urea*0.07, Vv8 (
:eval_rule_exp(quantity of urea*0.07, Vv9 (
:eval_rule_exp(quantity of urea*0.07, Vv10 (
:eval_rule_exp(quantity of urea*0.07, Vv11 (
:eval_rule_exp(quantity of urea*0.04, Vv12&(
r13([ advice(' ')in ammonium_nitrate_schedule
quantity_during_land_preparation(Vv1) in ammonium_nitrate_schedule
quantity_during_first_week(0) in ammonium_nitrate_schedule
quantity_during_third_week(Vv4) in ammonium_nitrate_schedule
quantity_during_forth_week(Vv5) in ammonium_nitrate_schedule
quantity_during_fifth_week(Vv6) in ammonium_nitrate_schedule
quantity_during_sixth_week(Vv7) in ammonium_nitrate_schedule
quantity_during_seventh_week(Vv8) in ammonium_nitrate_schedule

quantity_during_eighth_week(Vv9) in ammonium_nitrate_schedule
quantity_during_ninth_week(Vv10) in ammonium_nitrate_schedule
quantity_during_tenth_week(Vv11) in ammonium_nitrate_schedule
quantity_during_eleventh_week(Vv12) in ammonium_nitrate_schedule
quantity_during_twelfth_week(Vv12) in ammonium_nitrate_schedule
quantity_during_thirteen_week(Vv12) in ammonium_nitrate_schedule]) if
:eval_rule_exp(quantity of ammonium_nitrate*0.25, Vv1 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv4 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv5 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv6 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv7 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv8 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv9 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv10 (
:eval_rule_exp(quantity of ammonium_nitrate*0.07, Vv11 (
:eval_rule_exp(quantity of ammonium_nitrate*0.04, Vv12 (

```

```

name(bean) in plant
type(' ')in farm
nitrogen_fertilizer_name(' ')in macro_element&

r14([ advice(' ')in ammonium_sulphate_schedule
quantity_during_land_preparation(Vv1) in ammonium_sulphate_schedule
quantity_during_first_week(0) in ammonium_sulphate_schedule
quantity_during_third_week(Vv4) in ammonium_sulphate_schedule
quantity_during_forth_week(Vv5) in ammonium_sulphate_schedule
quantity_during_fifth_week(Vv6) in ammonium_sulphate_schedule
quantity_during_sixth_week(Vv7) in ammonium_sulphate_schedule
quantity_during_seventh_week(Vv8) in ammonium_sulphate_schedule
quantity_during_eighth_week(Vv9) in ammonium_sulphate_schedule
quantity_during_ninth_week(Vv10) in ammonium_sulphate_schedule
quantity_during_tenth_week(Vv11) in ammonium_sulphate_schedule
quantity_during_eleventh_week(Vv12) in ammonium_sulphate_schedule
quantity_during_twelfth_week(Vv12) in ammonium_sulphate_schedule
quantity_during_thirteen_week(Vv12) in ammonium_sulphate_schedule])
if
:eval_rule_exp(quantity of ammonium_sulphate*0.25, Vv1 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv4 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv5 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv6 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv7 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv8 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv9 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv10 (
:eval_rule_exp(quantity of ammonium_sulphate*0.07, Vv11 (
:eval_rule_exp(quantity of ammonium_sulphate*0.04, Vv12 (
name(bean) in plant
type(' ')in farm
nitrogen_fertilizer_name(' ')in macro_element&

r15([ advice(' ')in
phosphoric_acid_schedule
quantity_during_land_preparation(Vv1) in super_phosphate_schedule
quantity_during_third_week(Vv4) in phosphoric_acid_schedule
quantity_during_forth_week(Vv4) in phosphoric_acid_schedule
quantity_during_fifth_week(Vv4) in phosphoric_acid_schedule
quantity_during_sixth_week(Vv4) in phosphoric_acid_schedule
quantity_during_seventh_week(Vv4) in phosphoric_acid_schedule

quantity_during_eighth_week(Vv4) in phosphoric_acid_schedule
quantity_during_ninth_week(Vv4) in phosphoric_acid_schedule
quantity_during_tenth_week(Vv4) in phosphoric_acid_schedule
quantity_during_eleventh_week(Vv4) in phosphoric_acid_schedule

```

```

    quantity_during_twelfth_week(Vv4) in phosphoric_acid_schedule
quantity_during_thirteen_week(Vv4) in phosphoric_acid_schedule]) if
:eval_rule_exp(quantity of super_phosphate*0.75, Vv1 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.02, Vv4 (
name(bean) in plant
type(' ')in farm&
r16([ advice(' ')in potassium_sulphate_schedule
quantity_during_third_week(Vv4) in potassium_sulphate_schedule
quantity_during_forth_week(Vv5) in potassium_sulphate_schedule
quantity_during_fifth_week(Vv6) in potassium_sulphate_schedule
quantity_during_sixth_week(Vv7) in potassium_sulphate_schedule
quantity_during_seventh_week(Vv8) in potassium_sulphate_schedule
quantity_during_eighth_week(Vv9) in potassium_sulphate_schedule
quantity_during_ninth_week(Vv10) in potassium_sulphate_schedule
quantity_during_tenth_week(Vv11) in potassium_sulphate_schedule
quantity_during_eleventh_week(Vv12) in potassium_sulphate_schedule
quantity_during_twelfth_week(Vv12) in potassium_sulphate_schedule
quantity_during_thirteen_week(Vv12) in potassium_sulphate_schedule])
if
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv4 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv5 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv6 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv7 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv8 (
:eval_rule_exp(quantity of potassium_sulphate*0.10, Vv9 (
:eval_rule_exp(quantity of potassium_sulphate*0.10, Vv10 (
:eval_rule_exp(quantity of potassium_sulphate*0.10, Vv11 (
:eval_rule_exp(quantity of potassium_sulphate*0.08, Vv12 (
name(bean) in plant
type(' ')in farm&

r17([ advice(' ')in urea_schedule
quantity_during_land_preparation(V1) in urea_schedule
quantity_during_first_week(0) in urea_schedule
quantity_during_secon_week(V3) in urea_schedule
quantity_during_third_week(V4) in urea_schedule
quantity_during_forth_week(V5) in urea_schedule
quantity_during_fifth_week(V6) in urea_schedule
quantity_during_sixth_week(V7) in urea_schedule
quantity_during_seventh_week(V8) in urea_schedule
quantity_during_eighth_week(V9) in urea_schedule
quantity_during_ninth_week(V10) in urea_schedule
quantity_during_tenth_week(V11) in urea_schedule
quantity_during_eleventh_week(V12) in urea_schedule
quantity_during_twelfth_week(V13) in urea_schedule
quantity_during_thirteen_week(V14) in urea_schedule]) if

```

```

name(bean) in plant
  type('  ')in farm
nitrogen_fertilizer_name('  ')in macro_element
tunnel :: get(area(A(
:eval_rule_exp(quantity of urea*0.125, Vv1(
):V1 is (Vv1 * A)/4200 (
:eval_rule_exp(quantity of urea*0.15, Vv3(
):V3 is (Vv3 * A)/4200 (
:eval_rule_exp(quantity of urea*0.09, Vv4(
):V4 is (Vv4 * A)/4200 (
:eval_rule_exp(quantity of urea*0.09, Vv5(
):V5 is (Vv5 * A)/4200 (
:eval_rule_exp(quantity of urea*0.06, Vv6(
):V6 is (Vv6 * A)/4200 (
:eval_rule_exp(quantity of urea*0.06, Vv7(
):V7 is (Vv7 * A)/4200 (
:eval_rule_exp(quantity of urea*0.06, Vv8(
):V8 is (Vv8 * A)/4200 (
:eval_rule_exp(quantity of urea*0.044, Vv9(
):V9 is (Vv9 * A)/4200 (
:eval_rule_exp(quantity of urea*0.044, Vv10(
):V10 is (Vv10 * A)/4200 (
:eval_rule_exp(quantity of urea*0.044, Vv11(
):V11 is (Vv11 * A)/4200 (
:eval_rule_exp(quantity of urea*0.044, Vv12(
):V12 is (Vv12 * A)/4200 (
:eval_rule_exp(quantity of urea*0.044, Vv13(
):V13 is (Vv13 * A)/4200 (
:eval_rule_exp(quantity of urea*0.017, Vv14(
):V14 is (Vv14 * A)/4200&(

```

```

r18([ advice('  ')in ammonium_nitrate_schedule
  quantity_during_land_preparation(V1) in
ammonium_nitrate_schedule
  quantity_during_first_week(0) in ammonium_nitrate_schedule
  quantity_during_secon_week(V3) in ammonium_nitrate_schedule
  quantity_during_third_week(V4) in ammonium_nitrate_schedule
  quantity_during_forth_week(V5) in ammonium_nitrate_schedule
  quantity_during_fifth_week(V6) in ammonium_nitrate_schedule
  quantity_during_sixth_week(V7) in ammonium_nitrate_schedule
  quantity_during_seventh_week(V8) in ammonium_nitrate_schedule
  quantity_during_eighth_week(V9) in ammonium_nitrate_schedule
  quantity_during_ninth_week(V10) in ammonium_nitrate_schedule
  quantity_during_tenth_week(V11) in ammonium_nitrate_schedule
  quantity_during_eleventh_week(V12) in ammonium_nitrate_schedule

```

```

quantity_during_twelfth_week(V13) in ammonium_nitrate_schedule
quantity_during_thirteen_week(V14) in ammonium_nitrate_schedule]) if
name(bean) in plant
type(' ')in farm
nitrogen_fertilizer_name(' ')in macro_element
tunnel :: get(area(A(
:eval_rule_exp(quantity of ammonium_nitrate*0.125, Vv1 (
):V1 is (Vv1 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.15, Vv3 (
):V3 is (Vv3 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.09, Vv4 (
):V4 is (Vv4 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.09, Vv5 (
):V5 is (Vv5 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.06, Vv6 (
):V6 is (Vv6 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.06, Vv7 (
):V7 is (Vv7 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.06, Vv8 (
):V8 is (Vv8 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.044, Vv9 (
):V9 is (Vv9 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.044, Vv10 (
):V10 is (Vv10 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.044, Vv11 (
):V11 is (Vv11 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.044, Vv12 (
):V12 is (Vv12 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.044, Vv13 (
):V13 is (Vv13 * A)/4200 (
:eval_rule_exp(quantity of ammonium_nitrate*0.017, Vv14 (
):V14 is (Vv14 * A)/4200&(

```

```

r19([ advice(' ')in ammonium_sulphate_schedule
quantity_during_land_preparation(V1) in
ammonium_sulphate_schedule
quantity_during_first_week(0) in ammonium_sulphate_schedule
quantity_during_secon_week(V3) in ammonium_sulphate_schedule
quantity_during_third_week(V4) in ammonium_sulphate_schedule
quantity_during_forth_week(V5) in ammonium_sulphate_schedule
quantity_during_fifth_week(V6) in ammonium_sulphate_schedule
quantity_during_sixth_week(V7) in ammonium_sulphate_schedule
quantity_during_seventh_week(V8) in ammonium_sulphate_schedule

quantity_during_eighth_week(V9) in ammonium_sulphate_schedule
quantity_during_ninth_week(V10) in ammonium_sulphate_schedule

```

```

quantity_during_tenth_week(V11) in ammonium_sulphate_schedule
quantity_during_eleventh_week(V12) in ammonium_sulphate_schedule
quantity_during_twelfth_week(V13) in ammonium_sulphate_schedule
quantity_during_thirteen_week(V14) in ammonium_sulphate_schedule]) if
name(bean) in plant
type(' ')in farm
nitrogen_fertilizer_name(' ')in macro_element
tunnel :: get(area(A(
:eval_rule_exp(quantity of ammonium_sulphate*0.125, Vv1 (
):V1 is (Vv1 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.15, Vv3 (
):V3 is (Vv3 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.09, Vv4 (
):V4 is (Vv4 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.09, Vv5 (
):V5 is (Vv5 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.06, Vv6 (
):V6 is (Vv6 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.06, Vv7 (
):V7 is (Vv7 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.06, Vv8 (
):V8 is (Vv8 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.044, Vv9 (
):V9 is (Vv9 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.044, Vv10 (
):V10 is (Vv10 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.044, Vv11 (
):V11 is (Vv11 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.044, Vv12 (
):V12 is (Vv12 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.044, Vv13 (
):V13 is (Vv13 * A)/4200 (
:eval_rule_exp(quantity of ammonium_sulphate*0.017, Vv14 (
):V14 is (Vv14 * A)/4200&
r20([ advice(' ')in phosphoric_acid_schedule
quantity_during_land_preparation(V1) in
super_phosphate_schedule
quantity_during_third_week(V4) in phosphoric_acid_schedule
quantity_during_forth_week(V5) in phosphoric_acid_schedule
quantity_during_fifth_week(V6) in phosphoric_acid_schedule
quantity_during_sixth_week(V7) in phosphoric_acid_schedule
quantity_during_seventh_week(V8) in phosphoric_acid_schedule

quantity_during_eighth_week(V9) in phosphoric_acid_schedule
quantity_during_ninth_week(V10) in phosphoric_acid_schedule
quantity_during_tenth_week(V11) in phosphoric_acid_schedule

```

```

quantity_during_eleventh_week(V12) in phosphoric_acid_schedule
quantity_during_twelfth_week(V13) in phosphoric_acid_schedule
quantity_during_thirteen_week(V14) in phosphoric_acid_schedule]) if
name(bean) in plant
type(' ')in farm
tunnel :: get(area(A(
:eval_rule_exp(quantity of super_phosphate*0.35, Vv1 (
):V1 is (Vv1 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.075, Vv4 (
):V4 is (Vv4 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.075, Vv5 (
):V5 is (Vv5 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.05, Vv6 (
):V6 is (Vv6 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.05, Vv7 (
):V7 is (Vv7 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.05, Vv8 (
):V8 is (Vv8 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.04, Vv9 (
):V9 is (Vv9 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.04, Vv10 (
):V10 is (Vv10 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.04, Vv11 (
):V11 is (Vv11 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.04, Vv12 (
):V12 is (Vv12 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.04, Vv13 (
):V13 is (Vv13 * A)/4200 (
:eval_rule_exp(quantity of phosphoric_acid_75*0.019, Vv14 (
):V14 is (Vv14 * A)/4200&{
r21([ advice(' ')in potassium_sulphate_schedule
quantity_during_third_week(V4) in potassium_sulphate_schedule
quantity_during_forth_week(V5) in potassium_sulphate_schedule
quantity_during_fifth_week(V6) in potassium_sulphate_schedule
quantity_during_sixth_week(V7) in potassium_sulphate_schedule
quantity_during_seventh_week(V8) in potassium_sulphate_schedule

quantity_during_eighth_week(V9) in potassium_sulphate_schedule
quantity_during_ninth_week(V10) in potassium_sulphate_schedule
quantity_during_tenth_week(V11) in potassium_sulphate_schedule
quantity_during_eleventh_week(V12) in potassium_sulphate_schedule
quantity_during_twelfth_week(V13) in potassium_sulphate_schedule
quantity_during_thirteen_week(V14) in potassium_sulphate_schedule])
if
name(bean) in plant
type(' ')in farm

```



```

tunnel :: get(area(A(
:eval_rule_exp(quantity of potassium_sulphate*0.10, Vv4 (
):V4 is (Vv4 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.10, Vv5 (
):V5 is (Vv5 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.07, Vv6 (
):V6 is (Vv6 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.07, Vv7 (
):V7 is (Vv7 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.07, Vv8 (
):V8 is (Vv8 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv9 (
):V9 is (Vv9 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv10 (
):V10 is (Vv10 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv11 (
):V11 is (Vv11 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv12 (
):V12 is (Vv12 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.06, Vv13 (
):V13 is (Vv13 * A)/4200 (
:eval_rule_exp(quantity of potassium_sulphate*0.035, Vv14 (
):V14 is (Vv14 * A)/4200&

```

```

super(rules(
.{
%End of model

```

### 3. Inference Knowledge

<b>File Name</b>	inference
<b>File Size</b>	1 KB
<b>File Date</b>	12/8/2002

```

inference}::
  assessment-:
    estimate :: conclude_all&

  predict-:
    conclude :: conclude_all
    deduce :: conclude_all&

```

```

specify-:
    determine :: conclude_all&

calculate_1-:
    calculate_element_in_plant :: conclude_all&

calculate_2-:
    calculate_element_in_enviroment :: conclude_all&

calculate_fertilizer_needed-:
    calculate_fertilizer_quality :: conclude_all&

generate_schedule-:
    tabulate :: conclude_all&

super(krol_init(
.{

```

#### 4. Task Knowledge

<b>File Name</b>	task
<b>File Size</b>	17 KB
<b>File Date</b>	3/9/2002

```

-:ensure_loaded])
    '$KROL/lib/date '
    '$KROL/lib/log '
    '$KROL/lib/gt '
    '$KROL/lib/stack '
    '$KROL/lib/msgs '
    '$KROL/lib/back_dlg '
    '$KROL/lib/database '
    '$KROL/lib/tab '
    '$KROL/lib/fun '
    '$KROL/lib/krol_init '
    '$KROL/lib/tk_user '
    '$KROL/lib/history '
    '$KROL/lib/rule_exp '
    '$KROL/lib/inferenc '
.([
-:ensure_loaded('$KROL/lib/buttonbox.(
-:ensure_loaded('$KROL/lib/ComboBox.(
-:ensure_loaded('$KROL/lib/labelentry.(
-:ensure_loaded('$KROL/lib/label.(

```

```

-:ensure_loaded('$KROL/lib/labelframe.(
-:use_module(library(lists.((

task)::
super(krol_init(
.{

task_unconditional)::

basic_data-:
  water :: get_value(eciw(V8 ((
  soil :: get_value(ec(V9 ((
  soil :: get_value(type(V11 ((
  soil :: set(type(V11 ((
  irrigation :: get_value(method(V5 ((
  farm :: get_value(type(V10 ((
)v10<- ' '=
)
  tunnel :: get_value(area(A((
  tunnel :: set(area(A((
(
  true
(

water :: set(eciw(V8 ((
soil :: set(ec(V9 ((
irrigation :: set(method(V5 ((
farm :: set(type(V10 ((
)v5<- ' '=
V1 ' '=
macro_element :: set(nitrogen_fertilizer_name(V1 ((
dripping_irrigation_macro_element ::
get_value(phosphor_fertilizer_name(V3 ((

))V3) <- (' '=
krol_msgs :: show
')

([], '
dripping_irrigation_macro_element ::
set(phosphor_fertilizer_name((' '))
(
dripping_irrigation_macro_element ::
set(phosphor_fertilizer_name(V3((
(

```

```

        macro_element :: get_value(nitrogen_fertilizer_name(V1 ((
        macro_element :: set(nitrogen_fertilizer_name(V1 ((
        flooding_irrigation_macro_element ::
get_value(phosphor_fertilizer_name(V3 ((
        ))V3) <- (' '=
        krol_msgs :: show
    ([]) '
        flooding_irrigation_macro_element ::
set(phosphor_fertilizer_name(' '))
        (
        flooding_irrigation_macro_element ::
set(phosphor_fertilizer_name(V3((
        (
        (
        organic_manure :: get_value(name(V2 ((
        organic_manure :: set(name(V2 ((
        plant :: set(name(bean ((
        task_user :: set_macro_elem(V1,V3,V5 (
        current_planting :: get_value(date(Db_Date ((
        irrigation_task_user :: convdate(Db_Date,Date (
        current_planting :: set(date(Date((

start-:

        task_user :: set_default
        tcl :: eval(['proc on_change_irr_type
{args}',br([prolog,dq(on_change_irr_type (((

        plant :: set(name(bean ((
        plantation :: get_value(cultivation_capability(Cul ((
        )Cul = yes<-
        irrigation :: get_value(method(Meth ((
        farm :: get_value(type(Fatyp ((
        )))Fatyp ' '=Meth) (' '=Fatyp ' '=Meth) (' '=Fatyp =
' 'Meth<- (' '=
        )krol_msgs :: show([]) '
        (
        )

        soil :: get_value(texture(Ty ((

```

([]'

```
) )Ty ' '=Meth<-' '=
krol_msgs :: show
)

::basic_data
inference :: assessment
soil :: get_value(soil_analysis(Sanal((
)Sanal<-' '=
)

soil :: get_value( ca_quantity(V1((
soil :: get_value( n_quantity(V2((
soil :: get_value( p_quantity(V3((
soil :: get_value( k_quantity(V4((
soil :: get_value( mg_quantity(V5((
soil :: get_value( fe_quantity(V6((
soil :: get_value( zn_quantity(V7((
soil :: get_value( mn_quantity(V8((
soil :: get_value( cu_quantity(V9((
soil :: get_value( calcium_carbonate(V10((
soil :: set( ca_quantity(V1((
soil :: set( n_quantity(V2((
soil :: set( p_quantity(V3((
soil :: set( k_quantity(V4((
soil :: set( mg_quantity(V5((
soil :: set( fe_quantity(V6((
soil :: set( zn_quantity(V7((
soil :: set( mn_quantity(V8((
soil :: set( cu_quantity(V9((
soil :: set( calcium_carbonate(V10((
(

task_user :: set_soil_data
% inference :: specify

(
water :: get_value(water_analysis(Wanal((
)Wanal<-' '=
)

water :: get_value( ca_quantity(Vr1((
water :: get_value( n_quantity(Vr2((
water :: get_value( p_quantity(Vr3((
water :: get_value( k_quantity(Vr4((
```

```

        water :: get_value( mg_quantity(Vr5 ((
        water :: get_value( fe_quantity(Vr6 ((
        water :: get_value( zn_quantity(Vr7 ((
        water :: get_value( mn_quantity(Vr8 ((
        water :: get_value( cu_quantity(Vr9 ((
        water :: set( ca_quantity(Vr1 ((
        water :: set( n_quantity(Vr2 ((
        water :: set( p_quantity(Vr3 ((
        water :: set( k_quantity(Vr4 ((
        water :: set( mg_quantity(Vr5 ((
        water :: set( fe_quantity(Vr6 ((
        water :: set( zn_quantity(Vr7 ((
        water :: set( mn_quantity(Vr8 ((
        water :: set( cu_quantity(Vr9((
    (

        task_user :: set_water_data

    (
        inference :: predict
        inference :: calculate_1
        inference :: calculate_2
        inference :: calculate_fertilizer_needed
%amera        task_user :: chk_qty_value
        inference :: generate_schedule
        task_user :: display_micro_elem_sched
        task_user :: display_macro_elem_sched
    (

    (
        ((

        krol_msgs :: show([], '

    &(

    super(task(
    .{

    task_user}::
    attributes])
        macro_element([])
        &([

```

```

set_macro_elem(N,P,Irr-:(
:trace
  get_NP(N,P,Irr,Alist(
    irrigation :: get_value(method(Methdes ((
    ))Methdes<- (' '=
    :append(['          '])Alist,MacroE11(
  )
    :append(['          ''          '])Alist,MacroE12(
    :remove_duplicates(MacroE12, MacroE11(
  (
  (
    set(macro_element(MacroE11&((

get_NP(N,P,Irr,[H|T-:([
  get_n(N,H(
  get_p(P,Irr,T&(

get_n&(' '' ')
get_n&(' '' ')

get_p&([' ]_ ' ')
get_p&([' ]_ ' ')
get_p&([' ]_ ' ')

set_default-:

  clacium_nitrate :: set(ratio_of_ca(0.23((
  clacium_nitrate :: set(ratio_of_n(0.17((
  clacium_nitrate :: set(usefulness_coefficient(1((
  ammonium_nitrate :: set(ratio_of_n(0.335((
  ammonium_nitrate :: set(usefulness_coefficient(1((
  urea :: set(ratio_of_n(0.46((
  urea :: set(usefulness_coefficient(1((
  super_phosphate :: set(ratio_of_p(0.155((
  super_phosphate :: set(usefulness_coefficient(1((
  triple_super_phosphate :: set(ratio_of_p(0.4((
  triple_super_phosphate :: set(usefulness_coefficient(1((
  ((
  phosphoric_acid_75 :: set(ratio_of_p(0.543((

```

```

phosphoric_acid_75 :: set(usefulness_coefficient(1 ((
nitric_acid :: set(ratio_of_n(0.156 ((
potassium_sulphate :: set(ratio_of_k(0.48 ((
potassium_sulphate :: set(usefulness_coefficient(1 ((
magnesium_sulphate :: set(ratio_of_mg(0.2 ((
magnesium_sulphate :: set(usefulness_coefficient(1 ((
set(usefulness_coefficient(1.6 ((
iron_chelate :: set(ratio_of_fe(0.16 ((
iron_chelate :: set(usefulness_coefficient(1 ((
zinc_chelate :: set(ratio_of_zn(0.135 ((
zinc_chelate :: set(usefulness_coefficient(1 ((
manganese_chelate :: set(ratio_of_mn(0.12 ((
manganese_chelate :: set(usefulness_coefficient(1 ((
copper_chelate :: set(ratio_of_cu(0.11 ((
copper_chelate :: set(usefulness_coefficient(1 ((
::' 'set(weight(250 ((
::' 'set(ratio_of_n(0.015 ((
::' 'set(ratio_of_p(0.012 ((
::' 'set(ratio_of_k(0.005 ((
::' 'set(ratio_of_ca(0 ((
::' 'set(ratio_of_mg(0 ((
::' 'set(weight(575 ((
::' 'set(ratio_of_n(0.013 ((
::' 'set(ratio_of_p(0.007 ((
::' 'set(ratio_of_k(0.005 ((
::' 'set(ratio_of_ca(0 ((
::' 'set(ratio_of_mg(0 ((
% ::' 'set(weight(700 ((
/**/ ::' 'set(weight(175 ((
::' 'set(ratio_of_n(0.005 ((
::' 'set(ratio_of_p(0.0014 ((
::' 'set(ratio_of_k(0.004 ((
::' 'set(ratio_of_ca(0 ((
::' 'set(ratio_of_mg(0 ((
::' 'set(weight(250 ((
::' 'set(ratio_of_n(0.02 ((
::' 'set(ratio_of_p(0.0066 ((
::' 'set(ratio_of_k(0.016 ((
::' 'set(ratio_of_ca(0 ((
::' 'set(ratio_of_mg(0 ((
::' ' 'set(weight(300 ((
::' 'set(ratio_of_n(0.04 ((
::' 'set(ratio_of_p(0.036 ((
::' 'set(ratio_of_k(0.026 ((
::' 'set(ratio_of_ca(0 ((

```



```

::' 'set(ratio_of_mg(0((
bean ::set(n_ratio(0.06((
bean ::set(p_ratio(0.0055((
bean ::set(k_ratio(0.03((
bean ::set(ca_ratio(0.02((
bean ::set(mg_ratio(0.0065((
bean ::set(fe_ratio(0.000175((
bean ::set(mn_ratio(0.000175((
bean ::set(zn_ratio(0.00011((
bean ::set(elements([n,p,k,ca,mg,fe,zn,mn&([[

```

set\_water\_data-:

```

water :: set( ca_quantity(0((
water :: set( n_quantity(0((
water :: set( p_quantity(0((
water :: set( k_quantity(0((
water :: set( mg_quantity(0((
water :: set( fe_quantity(0((
water :: set( zn_quantity(0((
water :: set( mn_quantity(0((
water :: set( cu_quantity(0&((

```

set\_soil\_data-:

```

soil :: set( ca_quantity(0((
soil :: set( n_quantity(0((
soil :: set( p_quantity(0((
soil :: set( k_quantity(0((
soil :: set( mg_quantity(0((
soil :: set( fe_quantity(0((
soil :: set( zn_quantity(0((
soil :: set( mn_quantity(0((
soil :: set( cu_quantity(0((
soil :: set( calcium_carbonate(0&((

```

display\_micro\_elem\_sched-:

```

micro_element_schedule :: get( iron_chelate_quantity(IrChel((
micro_element_schedule :: get( zink_chelate_quantity(ZnChel((
micro_element_schedule :: get(
manganese_chelate_quantity(MnChel((
clacium_nitrate_schedule :: get( quantity(CaChel((
micro_element_schedule :: get(application_date(AppDate((
micro_element_schedule :: get(advice(Adv((

```

```

magnesium_sulphate_schedule :: get( quantity(MgSuel ((
magnesium_sulphate_schedule :: get( advice(MgSuAdel ((
check_micro_elem_val([IrChel,ZnChel,MnChel,MgSuel],Flag(

)Flag = true<-
  irrigation :: get(method(Irr((
  farm :: get(type(Mtype((
    )Irr<-' '=
      dlg3 :: run
      round_t0_ten(IrChel,IrChel1(
      round_t0_ten(ZnChel,ZnChel1(
      round_t0_ten(MnChel,MnChel1(
      round_t0_ten(CaChel,CaChel1(
      round_t0_ten(MgSuel,MgSuel1(
      ir_ch_ent :: set_default(dlg3, IrChel1(
      zn_ch_ent :: set_default(dlg3, ZnChel1(
      mn_ch_ent :: set_default(dlg3, MnChel1(
      ca_ch_ent :: set_default(dlg3, CaChel1(

      mg_su_ent :: set_default(dlg3, MgSuel1(
      mg_su_ad_ent :: set_default(dlg3, MgSuAdel(
      app_date_ent :: set_default(dlg3,AppDate(
      app1_mth_ent :: set_default(dlg3('
      ))MgSuel1 = 0.0<-(
        app_mth_ent:: set_default(dlg3("

        app_mth_ent:: set_default(dlg3('
      (

      ad_ent :: set_default(dlg3,Adv(
      dlg3 :: tkwait

    )

%      dlg6 :: init

      )Mtype<-' '=
      dlg6 :: init

      dlg7 :: init
      (

: true

&(

```

```

display_macro_elem_sched-:
    get (macro_element (MacroE ((
        nitric_acid :: get (quantity Qty ((
        farm :: get (type (Mtype ((
        )Qty<- [] =
        MacroE1 = MacroE

        :append ['      '])MacroE,MacroE1(
        (
        set (macro_element (MacroE1 ((
        irrigation :: get (method (Irr ((
        )Irr<- ' '=
        )
        tcl :: eval(['proc on_change_fert1_name
{args}',br([prolog,dq(on_change_fert1_name (((
        dlg4 :: display
        dlg4 :: tkwait
        (
        ))Mtype<- (' '=
        )tcl :: eval(['proc on_change_fert2_name
{args}',br([prolog,dq(on_change_fert2_name (((
        dlg5 :: display
        dlg5 :: tkwait
        (
        :):trace
        tcl :: eval(['proc on_change_fert3_name
{args}',br([prolog,dq(on_change_fert3_name (((
        dlg8 :: display
        dlg8 :: tkwait
        (
        (
        (
        &(

check_micro_elem_val ([0,0,0,0],false&(
check_micro_elem_val ([_,_,_,_],true&(

chk_qty_value-:
    :findall (Fert, ( fertilizer :: leaves (LevList (
        member (Fert, LevList (
            Fert :: get (quantity Qty ((
            number Qty (
        Qty < 10
        Fert :: set (quantity 0((

```

```

- (
&(

round_t0_ten([],0.0&(
round_t0_ten(N,AN-:(
):AN is (round(N*10))/10&(

trans(magnesium_sulphate_schedule&'
trans(potassium_sulphate_schedule&'
trans(phosphoric_acid_schedule&'
trans(triple_super_phosphate_schedule&'
trans(super_phosphate_schedule&'
trans(clacium_nitrate_schedule&'
trans(nitric_acid_schedule&'
trans(ammonium_nitrate_schedule&'
trans(urea_schedule&'
super(task(
.{

```

```

main_fert-:

krol_init :: init
tcl :: init
listbox_button :: set(back(0 ((
entry_buttons :: set(back(0 ((
task_unconditional :: start.

```

## 5. Interface

There are six dialogue boxes for output schedule. The file names of these dialogues are "dlg3","dlg4", "dlg5", "dlg6", "dlg7", and "dlg8".

<b>File Name</b>	<b>Dlg3</b>
<b>File Size</b>	<b>6 KB</b>
<b>File Date</b>	<b>1/9/2002</b>

```

dlg3} ::
widget(dlg3& ([ ,
components(Xs) :- self(D), :findall(X, D :: cs(_, X), Xs& (
pack(all_dlg3_frm, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([
c(all_dlg3_frm, dlg3& (
pack(mg_su_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([

```

```

c(mg_su_ent, upa_dlg3_frm& (
pack(mg_su_ad_ent, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',n& (
c(mg_su_ad_ent, upa_dlg3_frm& (
pack(ok_btndlg3& (]
c(ok_btndlg3, dlg3& (
pack(bot_dlg3_frm, ['-side',top,'-expand',true,'-fill',both,'-anchor',e& (
c(bot_dlg3_frm, up_dlg3_frm& (
pack(up_dlg3_frm, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& (
c(up_dlg3_frm, all_dlg3_frm& (
pack(upa_dlg3_frm, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& (
c(upa_dlg3_frm, up_dlg3_frm& (
pack(up_left_fr, ['-side',left,'-expand',true,'-fill',both,'-anchor',s& (
c(up_left_fr, bot_dlg3_frm& (
pack(up_right_dlg3_fr, ['-side',right,'-expand',true,'-fill',both,'-anchor',s& (
c(up_right_dlg3_fr, bot_dlg3_frm& (
pack(up_top_fr, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& (
c(up_top_fr, bot_dlg3_frm& (
pack(fert_lb, ['-side',left,'-expand',true,'-fill',both,'-anchor',s& (
c(fert_lb, up_top_fr& (
pack(qty_lb, ['-side',right,'-expand',true,'-fill',both,'-anchor',e& (
c(qty_lb, up_top_fr& (

```

```

pack(ir_ch_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',e& (
c(ir_ch_ent, bot_dlg3_frm& (
pack(zn_ch_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',e& (
c(zn_ch_ent, bot_dlg3_frm& (
pack(mn_ch_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',e& (
c(mn_ch_ent, bot_dlg3_frm& (
pack(ca_ch_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',e& (
c(ca_ch_ent, bot_dlg3_frm& (
pack(app1_mth_ent, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',n& (
c(app1_mth_ent, bot_dlg3_frm& (
pack(app_date_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& (
c(app_date_ent, bot_dlg3_frm& (
pack(ad_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',s& (
c(ad_ent, bot_dlg3_frm& (
pack(upb_dlg3_frm, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',n& (
c(upb_dlg3_frm, up_dlg3_frm& (
pack(app_mth_ent, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',n& (
c(app_mth_ent, upb_dlg3_frm& (
super(dialog(
.{

```

```

ad_ent} ::
widget(ad_ent, ['-label-',النصيحة', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& (
default_var(ad_ent& (

```

```

super(labelentry(
.{
all_dlg3_frm} ::
widget(all_dlg3_frm, ['-labelside',none& ([) ,[
super(labelframe(
.{
app1_mth_ent} ::
widget(app1_mth_ent, ['-label-', 'طريقة التسميد', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(app1_mth_ent& (
super(labelentry(
.{
app_date_ent} ::
widget(app_date_ent, ['-label-', 'تاريخ الرش', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(app_date_ent& (
super(labelentry(
.{
app_mth_ent} ::
widget(app_mth_ent, ['-label-', 'طريقة التسميد', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(app_mth_ent& (
super(labelentry(
.{
bot_dlg3_frm} ::
widget(bot_dlg3_frm, ['-labelside',none& ([) ,[
super(labelframe(
.{
fert_lb} ::
widget(fert_lb, ['-anchor',c,'-text-', 'الكمية (كجم/فدان)', 'padx',0,'-pady',0,'-
relief',groove,'-justify',center& ([) ,[
super(label(
.{
ir_ch_ent} ::
widget(ir_ch_ent, ['-label-', 'حديد مخلي', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(ir_ch_ent& (
super(labelentry(
.{
mn_ch_ent} ::
widget(mn_ch_ent, ['-label-', 'منجنيز مخلي', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(mn_ch_ent& (
super(labelentry(
.{
ca_ch_ent} ::
widget(ca_ch_ent, ['-label-', 'نترات كالسيوم', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(ca_ch_ent& (
super(labelentry(

```

```

.{
mg_su_ent} ::
widget(mg_su_ent, ['-label-', 'سلفات الماغنيسيوم :', 'labelside',right],
['label.width',25,'entry.width',47,'entry.justify',right& ([
default_var(mg_su_ent& (
super(labelentry(
.{
mg_su_ad_ent} ::
widget(mg_su_ad_ent, ['-label-', 'النصيحة :', 'labelside',right],
['label.width',25,'entry.width',47,'entry.justify',right& ([
default_var(mg_su_ad_ent& (
super(labelentry(
.{
ok_btndlg3} ::
widget(ok_btndlg3, ['-orient',horizontal], ['-padx','', '-pady& ([''
default(ok& (
button(ok, ['-text-', 'خروج', 'command',ok_btndlg3 :: action_ok'],
'<Control-o& ('<
action_ok-:
dlg3 :: destroy&
super(buttonbox(
.{
qty_lb} ::
widget(qty_lb, ['-anchor',c,'-text-', 'اسم السماد', 'padx',0,'-pady',0,'-relief',groove,'-
justify',center& ([ '
super(label(
.{
up_dlg3_frm} ::
widget(up_dlg3_frm, ['-labelside',none& ([ '
super(labelframe(
.{
upa_dlg3_frm} ::
widget(upa_dlg3_frm, ['-labelside',none& ([ '
super(labelframe(
.{
upb_dlg3_frm} ::
widget(upb_dlg3_frm, ['-labelside',none& ([ '
super(labelframe(
.{
up_left_fr} ::
widget(up_left_fr, ['-labelside',left& ([ '
super(labelframe(
.{
up_top_fr} ::
widget(up_top_fr, ['-labelside',none& ([ '
super(labelframe(
.{
up_right_dlg3_fr} ::
widget(up_right_dlg3_fr, ['-labelside',right& ([ '
super(labelframe(

```

```
.{
zn_ch_ent} ::
widget(zn_ch_ent, ['-label-', 'زنك مخلبي :', 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(zn_ch_ent& (
super(labelentry(
.{
```

File Name	Dlg4
File Size	5 KB
File Date	31/8/2002

```
dlg4} ::
widget(dlg4& ([ ,
window_title& ('الرى بالغمر')
components])
all_frm◊
ok_btndlg4◊
left_frm◊
right_frm◊
fert_cmbx◊
up_frm◊
bot_frm◊
per_lb◊
lnd_dlg4_ent◊
frst_dlg4_ent◊
snd_dlg4_ent◊
adv_flod_fert◊
adv_flod_ent◊

&([

super(dialog(
.{

all_frm} ::
widget(all_frm, ['-labelside',none& ([ [
pack(all_frm, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([
belong_to(dlg4& (
super(labelframe(
.{

ok_btndlg4} ::
widget(ok_btndlg4, ['-orient',horizontal], ['-padx','', '-pady& ([''
pack(ok_btndlg4& ([ ,
belong_to(dlg4& (
default(ok& (
button(ok, ['-text-', 'خروج', 'command','ok_btndlg4 :: ok_action'],
'<Control-o& ('<
```



```

ok_action-:
%      Write action code here&
      dlg4 :: destroy&
super(buttonbox(
.{

left_frm} ::
widget(left_frm, ['-labelside',none& ([) '[
pack(left_frm, ['-side',right,'-expand',true,'-fill',both,'-anchor',e& ([
belong_to(all_frm& (
super(labelframe(
.{

right_frm} ::
widget(right_frm, ['-labelside',none& ([) '[
pack(right_frm, ['-side',right,'-expand',true,'-fill',both,'-anchor',e& ([
belong_to(all_frm& (
super(labelframe(
.{

fert_cmbx} ::
widget(fert_cmbx, ['-label-',اسم السماد', 'labelside',top,'-editable',false,'-
dropdown',true,'-browsecmd',on_change_fert1_name], ['-anchor',e,'-
value',command& ([
pack(fert_cmbx, ['-side',right,'-expand',true,'-fill',both,'-anchor',e& ([
belong_to(left_frm& (
content(ME -: (
      task_user :: get(macro_element(ME&((

super(combobox(
.{

up_frm} ::
widget(up_frm, ['-labelside',none& ([) '[
pack(up_frm, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([
belong_to(right_frm& (
super(labelframe(
.{
*/

lft_frm} ::
widget(lft_frm, ['-labelside',top& ([) '[
pack(lft_frm, ['-side',left,'-expand',true,'-fill',both,'-anchor',e& ([
belong_to(up_frm& (
super(labelframe(
.{

rgh_frm} ::
widget(rgh_frm, ['-labelside',top& ([) '[
pack(rgh_frm, ['-side',right,'-expand',true,'-fill',both,'-anchor',e& ([
belong_to(up_frm& (

```

```

super(labelframe(
.{
qty_dlg4_lb} ::
widget(qty_dlg4_lb, ['-anchor',c,'-text-', 'فترات التسميد', 'padx',0,'-pady',0,'-
relief',solid,'-justify',right& ([ [
pack(qty_dlg4_lb, ['-side',right,'-expand',true,'-fill',both,'-anchor',n& ([
belong_to(rgh_frm& (
super(label(
.{
bot_frm} ::
widget(bot_frm, ['-labelside',none& ([ [
pack(bot_frm, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',s& ([
belong_to(right_frm& (
super(labelframe(
.{

lnd_dlg4_ent} ::
widget(lnd_dlg4_ent, ['-label-', 'اعداد الأرض للزراعة : ', 'labelside',right], ['label.widt'
,15,'entry.width',35,'entry.justify',right& ([
pack(lnd_dlg4_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([
belong_to(bot_frm& (
default_var(x20& (
super(labelentry(
.{

frst_dlg4_ent} ::
widget(frst_dlg4_ent, ['-label-', 'الشهر الاول : ', 'labelside',right], ['label.widt'
,15,'entry.width',35,'entry.justify',right& ([
pack(frst_dlg4_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([
belong_to(bot_frm& (
default_var(x21& (
super(labelentry(
.{

snd_dlg4_ent} ::
widget(snd_dlg4_ent, ['-label-', 'الشهر الثاني : ', 'labelside',right], ['label.widt'
,15,'entry.width',35,'entry.justify',right& ([
pack(snd_dlg4_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n& ([
belong_to(bot_frm& (
default_var(x22& (
super(labelentry(
.{

adv_flod_ent} ::
widget(adv_flod_ent, ['-height', 60, '-width',300], ['entry.justify',left&([
pack(adv_flod_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',w& ([
belong_to(adv_flod_fert& (
super(textwindow(
.{

```

```

adv_flod_fert} ::
widget(adv_flod_fert, ['-label-',النصيحة' 'labelside',right& ([) '
pack(adv_flod_fert, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',s& ([
belong_to(bot_frm& (
super(labelframe(
.{

```

```

on_change_fert1_name:-

```

```

    fert_cmbx :: fetch(CN<(
    task_user :: trans(CN1,CN<(
    CN1 :: get(quantity_during_land_preparation(V1<((
    CN1 :: get(quantity_during_first_month(V2<((
    CN1 :: get(quantity_during_second_month(V3<((
    CN1 :: get(advice(Vadv<((
    task_user :: round_t0_ten(V1,V1n<(
    task_user :: round_t0_ten(V2,V2n<(
    task_user :: round_t0_ten(V3,V3n<(
    lnd_dlg4_ent :: set_default(V1n<(
    frst_dlg4_ent :: set_default(V2n<(
    snd_dlg4_ent :: set_default(V3n<(
    adv_flod_ent :: delete('1.0', end<(
    adv_flod_ent :: insert('1.0', Vadv.<

```

File Name	Dlg5
File Size	11 KB
File Date	31/8/2002

```

dlg5} ::
widget(dlg5& ([)
window_title& (' ')
%components(Xs) :- self(D), :findall(X, D :: cs(_, X), Xs& (
components])
    all_dlg5_frm
    ok_btndlg5
    left_dlg5_frm
    right_dlg5_frm
    fertdlg5_cmbx
    up_dlg5_frm
    bot_dlg5_frm
*/
    lft_dlg5_frm
    rgh_dlg5_frm

```

```

        perdlg5_lb
        qtydlg5_lb
/*
        lnddlg5_ent
        frstdlg5_ent
        snddlg5_ent
        thrddlg5_ent
        forthdlg5_ent
        fifth_ent
        sixth_ent
        sevth_ent
        eghith_ent
        ninth_ent
        tenth_ent
        elevth_ent
        twel_ent
        thirteen_ent
        %   forttee_ent
        %   fiftee_ent
        left_fll_opr_irr_fert
        ad_ent2a
    &([

super(dialog(
.{

all_dlg5_frm}::
belong_to(dlg5&(
pack(['-side',top,'-expand',true,'-fill',both,'-anchor',n&([
widget(all_dlg5_frm,['-labelside',none&([ [
super(labelframe(
.{
bot_dlg5_frm}::
pack(bot_dlg5_frm,['-side',bottom,'-expand',true,'-fill',both,'-
anchor',s&([
belong_to(right_dlg5_frm&(
widget(bot_dlg5_frm,['-labelside',none&([ [
super(labelframe(
.{

```

```

fertdlg5_cmbx}::
pack(fertdlg5_cmbx, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(left_dlg5_frm& (
widget(fertdlg5_cmbx, ['-label-' / ) ) ''
labelside',right,'-editable',false,'-dropdown',true,'-
browsecmd',on_change_fert2_name],
['label.with',25,'entry.width',40,'-anchor',e,'-value',command& ([
content(ME-(
    task_user :: get(macro_element(ME&((
super(combobox(
.{

forthdlg5_ent}::
pack(forthdlg5_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg5_frm & (
widget(forthdlg5_ent, ['-label-' : ''labelside',right],
['label.wdth',25,'entry.width',50,'entry.justify',right& ([
default_var(x5& (
super(labelentry(
.{

fifth_ent}::
pack(fifth_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(fifth_ent, ['-label-' : ''labelside',right],
['label.idth',25,'entry.width',50,'entry.justify',right& ([
default_var(x6 & (
super(labelentry(
.{

sixth_ent}::
pack(sixth_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(sixth_ent, ['-label-' : ''labelside',right],
['label.wdth',25,'entry.width',50,'entry.justify',right& ([
default_var(x7& (
super(labelentry(

```

```

.{

sevth_ent}::
pack(sevth_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(sevth_ent, ['-label-'          :      'labelside',right],
['label.wdth',25,'entry.width',50,'entry.justify',right& ([
default_var(x8& (
super(labelentry(
.{

eghith_ent}::
pack(eghith_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(eghith_ent, ['-label-'          :      'labelside',right],
['label.wdth',25,'entry.width',50,'entry.justify',right& ([
default_var(x9& (
super(labelentry(
.{

ninth_ent}::
pack(ninth_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(ninth_ent, ['-label-'          :      'labelside',right],
['label.wdth',25,'entry.width',50,'entry.justify',right& ([
default_var(x10& (
super(labelentry(
.{

tenth_ent}::
pack(tenth_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(tenth_ent, ['-label-'          :      'labelside',right],
['label.wdth',25,'entry.width',50,'entry.justify',right& ([
default_var(x12& (
super(labelentry(

```

```

.{

elevth_ent}::
pack(elevth_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg5_frm& (
widget(elevth_ent, ['-label-'          : ''labelside',right],
['label.width',25,'entry.width',50,'entry.justify',right& ([
default_var(x13& (
super(labelentry(
.{

twel_ent}::
pack(twel_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n ([
&
belong_to(bot_dlg5_frm& (
widget(twel_ent, ['-label-'          : ''labelside',right],
['label.width',25,'entry.width',50,'entry.justify',right& ([
default_var(x14& (
super(labelentry(
.{

thirtee_ent}::
pack(thirtee_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg5_frm& (
widget(thirtee_ent, ['-label-'          : ''labelside',right],
['label.width',25,'entry.width',50,'entry.justify',right& ([
default_var(x15& (
super(labelentry(
.{

frstdlg5_ent}::
pack(frstdlg5_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg5_frm& (
widget(frstdlg5_ent, ['-label-'          :          ''labelside',right],
['label.idth',25,'entry.width',50,'entry.justify',right& ([
default_var(x11& (
super(labelentry(

```

```

.{

left_dlg5_frm}::
pack(left_dlg5_frm, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(all_dlg5_frm& (
widget(left_dlg5_frm, ['-labelside',none& ([ [
super(labelframe(
.{

lnddlg5_ent}::
pack(lnddlg5_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg5_frm& (
widget(lnddlg5_ent, ['-label-'          :  'labelside',right],
['label.width',25,'entry.width',50,'entry.justify',right& ([
default_var(x2& (
super(labelentry(
.{

ok_btndlg5}::
pack(['-side bottom -fill both& ([
belong_to(dlg5& (
widget(ok_btndlg5, ['-orient',horizontal], ['-padx','','-pady& ([''
default(ok& (
button(ok, ['-text-'          'command','ok_btndlg5 ::
ok_action'], '<Control-o& ('<
ok_action-:

        dlg5 :: destroy&
super(buttonbox(
.{

perdlg5_lb}::
pack(perdlg5_lb, ['-side',left,'-expand',true,'-fill',both,'-
anchor',w& ([
belong_to(lft_dlg5_frm& (
%belong_to(right_dlg5_frm& (
widget(perdlg5_lb, ['-anchor',c,'-text-' / ) )'padx',0,'-
pady',0,'-relief',solid,'-justify',center& ([ [

```



```

super(label(
.{

qtydlg5_lb}::
pack(qtydlg5_lb, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e&([
%belong_to(right_dlg5_frm&(
belong_to(rgh_dlg5_frm&(
widget(qtydlg5_lb, ['-anchor',c,'-text-' ' 'padx',0,'-pady',0,'-
relief',solid,'-justify',center&([ [
super(label(
.{

rgh_dlg5_frm}::
pack(rgh_dlg5_frm, ['-side',right,'-expand',true,'-fill',both,'-
anchor',w&([
belong_to(right_dlg5_frm&(
widget(rgh_dlg5_frm, ['-labelside',none&([ [
super(labelframe(
.{

lft_dlg5_frm}::
pack(lft_dlg5_frm, ['-side',left,'-expand',true,'-fill',both,'-
anchor',e&([
belong_to(right_dlg5_frm&(
widget(lft_dlg5_frm, ['-labelside',none&([ [
super(labelframe(
.{

right_dlg5_frm}::
pack(right_dlg5_frm, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e&([
belong_to(all_dlg5_frm&(
widget(right_dlg5_frm, ['-labelside',none&([ [
super(labelframe(
.{

snddlg5_ent}::
pack(snddlg5_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([

```

```

belong_to(bot_dlg5_frm& (
widget(snddlg5_ent, ['-label-' : 'labelside',right],
['label.width',25,'entry.width',50,'entry.justify',right]& ([
default_var(x3& (
super(labelentry(
.{

thrddlg5_ent}::
pack(thrddlg5_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg5_frm& (
widget(thrddlg5_ent, ['-label-' : 'labelside',right],
['label.width',25,'entry.width',50,'entry.justify',right]& ([
default_var(x4& (
super(labelentry(
.{

up_dlg5_frm}::
pack(up_dlg5_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(right_dlg5_frm& (
widget(up_dlg5_frm, ['-labelside',none& ([ [
super(labelframe(
.{

ad_ent2a}::
pack(ad_ent2a, ['-side',top,'-expand',true,'-fill',both,'-anchor',w ([
&
belong_to(left_f11_opr_irr_fert& (
widget(ad_ent2a, ['-height', 60, '-width',300], ['entry.justify',left
&([
super(textwindow(
.{

left_f11_opr_irr_fert}::
pack(left_f11_opr_irr_fert, ['-side',bottom,'-expand',true,'-
fill',both,'-anchor',s& ([
belong_to(bot_dlg5_frm& (
widget(left_f11_opr_irr_fert, ['-label-' : 'labelside',right& ([ [

```

```

super(labelframe(
.{
on_change_fert2_name-:
    fertdlg5_cmbx :: fetch(CN (
    task_user :: trans(CN1,CN (
    CN1 :: get(quantity_during_land_preparation(V1 ((
    CN1 :: get(quantity_during_first_week(V2 ((
    CN1 :: get(quantity_during_secon_week(V3 ((
    CN1 :: get(quantity_during_third_week(V4 ((
    CN1 :: get(quantity_during_forth_week(V5 ((
    CN1 :: get(quantity_during_fifth_week(V6 ((
    CN1 :: get(quantity_during_sixth_week(V7 ((
    CN1 :: get(quantity_during_seventh_week(V8 ((
    CN1 :: get(quantity_during_eighth_week(V9 ((
    CN1 :: get(quantity_during_ninth_week(V10 ((

    CN1 :: get(quantity_during_tenth_week(V11 ((
    CN1 :: get(quantity_during_eleventh_week(V12 ((
    CN1 :: get(quantity_during_twelfth_week(V13 ((
    CN1 :: get(quantity_during_thirteen_week(V14 ((
    CN1 :: get(advice(Vad ((
    task_user :: round_t0_ten(V1,V1n (
    task_user :: round_t0_ten(V2,V2n (
    task_user :: round_t0_ten(V3,V3n (
    task_user :: round_t0_ten(V4,V4n (
    task_user :: round_t0_ten(V5,V5n (
    task_user :: round_t0_ten(V6,V6n (
    task_user :: round_t0_ten(V7,V7n (
    task_user :: round_t0_ten(V8,V8n (
    task_user :: round_t0_ten(V9,V9n (
    task_user :: round_t0_ten(V10,V10n (
    task_user :: round_t0_ten(V11,V11n (
    task_user :: round_t0_ten(V12,V12n (
    task_user :: round_t0_ten(V13,V13n (
    task_user :: round_t0_ten(V14,V14n (

    lnddlg5_ent:: set_default(V1n (
    frstdlg5_ent:: set_default(V2n (

```

```

snddlg5_ent:: set_default(V3n (
thrddlg5_ent:: set_default(V4n (
forthdlg5_ent:: set_default(V5n (
fifth_ent:: set_default(V6n (
sixth_ent:: set_default(V7n (
sevth_ent :: set_default(V8n (
eghith_ent:: set_default(V9n (
ninth_ent:: set_default(V10n (
tenth_ent:: set_default(V11n (
elevth_ent:: set_default(V12n (
twel_ent:: set_default(V13n (
thirtee_ent:: set_default(V14n (
ad_ent2a :: delete('1.0' , end (
ad_ent2a :: insert('1.0', Vad.(

```

File Name	Dlg6
File Size	8 KB
File Date	1/9/2002

```

dlg6} ::
widget(dlg6& ([
components])
all_dlg6_frm
ok_btndlg6
up_dlg6_frm
bot_dlg6_frm
upa_dlg6_frm
mg_su_ent1
mg_ad_l_ent1
mg_su_ad_ent1
up_left_fr1
up_right_dlg6_fr
up_top_fr1
qty_lb1

```

```

ir_ch_ent1
zn_ch_ent1
mn_ch_ent1
ca_ch_ent1
app_mth_ent3
app_date_ent1
adl_ent
app_mth_ent2
    &([

init-:
    display
    micro_element_schedule :: get( iron_chelate_quantity(IrChel ((
    micro_element_schedule :: get( zink_chelate_quantity(ZnChel ((
    micro_element_schedule :: get(
manganese_chelate_quantity(MnChel ((
    clacium_nitrate_schedule :: get( quantity(CaChel ((
    micro_element_schedule :: get(application_date(AppDate ((
    micro_element_schedule :: get(advice(Adv ((
    magnesium_sulphate_schedule :: get( quantity(MgSuel ((
    magnesium_sulphate_schedule :: get( advice(MgSuAdel ((
    task_user ::
check_micro_elem_val([IrChel,ZnChel,MnChel,MgSuel],Flag(
)Flag = true<-
)
    task_user :: round_t0_ten(IrChel,IrChel2(
    task_user :: round_t0_ten(ZnChel,ZnChel2(
    task_user :: round_t0_ten(MnChel,MnChel2(
    task_user :: round_t0_ten(CaChel,CaChel2(
    task_user :: round_t0_ten(MgSuel,MgSuel2(
    ir_ch_ent1 :: set_default(IrChel2(
    zn_ch_ent1 :: set_default(ZnChel2(
    mn_ch_ent1 :: set_default(MnChel2(
    ca_ch_ent1 :: set_default(CaChel2(
    mg_su_ent1:: set_default(MgSuel2(
    mg_su_ad_ent1 :: delete('1.0' , end(
    mg_su_ad_ent1 :: insert('1.0' , MgSuAdel(
    app_date_ent1:: set_default(AppDate(

```

```

        app_mth_ent3:: set_default('      ')
    ))MgSue12 = 0.0<- (
        app_mth_ent2:: set_default("")

        app_mth_ent2:: set_default('      ')
    (
        adl_ent :: set_default(Adv (
            tkwait
    (
        : true      &(
super(dialog(
    .{
all_dlg6_frm}::
pack(all_dlg6_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(dlg6& (
widget(all_dlg6_frm, ['-labelside',none& ([ [
super(labelframe(
    .{

ok_btndlg6}::
pack(ok_btndlg6& ([
belong_to(dlg6& (
widget(ok_btndlg6, ['-orient',horizontal], ['-padx','', '-pady& (['' '
default(ok& (
button(ok, ['-text-'      'command','ok_btndlg6 :: action_ok'],
 '<Control-o& ('<
action_ok-:
        dlg6 :: destroy&
super(buttonbox(
    .{

up_dlg6_frm}::
pack(up_dlg6_frm, ['-side',bottom,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(all_dlg6_frm& (
widget(up_dlg6_frm, ['-labelside',none& ([ [
super(labelframe(
    .{
bot_dlg6_frm}::

```

```

pack(bot_dlg6_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(up_dlg6_frm& (
widget(bot_dlg6_frm, ['-labelside',none& ([] [
super(labelframe(
.{

up_left_fr1}::
pack(up_left_fr1, ['-side',left,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(bot_dlg6_frm& (
widget(up_left_fr1, ['-labelside',left& ([] [
super(labelframe(
.{

up_right_dlg6_fr}::
pack(up_right_dlg6_fr, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(bot_dlg6_frm& (
widget(up_right_dlg6_fr, ['-labelside',right& ([] [
super(labelframe(
.{

up_top_fr1}::
pack(up_top_fr1, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg6_frm& (
widget(up_top_fr1, ['-labelside',none& ([] [
super(labelframe(
.{
qty_lb1}::

pack(qty_lb1, ['-side',left,'-expand',true,'-fill',both,'-anchor',e ([
&
belong_to(up_top_fr1& (
widget(qty_lb1, ['-anchor',c,'-text
-' /      padx',5,'-pady',5,'-relief',groove,'-justify',left ([] [
&
relief',groove,'-justify',right& ([] [
super(label(

```

```

.{
ir_ch_ent1}::
pack(ir_ch_ent1, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
& ([
belong_to(bot_dlg6_frm& (
widget(ir_ch_ent1, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(x2& (
super(labelentry(
.{
zn_ch_ent1}::
pack(zn_ch_ent1, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
& ([
belong_to(bot_dlg6_frm& (
widget(zn_ch_ent1, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(x3& (
super(labelentry(
.{
mn_ch_ent1}::
pack(mn_ch_ent1, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
& ([
belong_to(bot_dlg6_frm& (
widget(mn_ch_ent1, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(x8& (
super(labelentry(
.{
ca_ch_ent1}::
pack(ca_ch_ent1, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
& ([
belong_to(bot_dlg6_frm& (
widget(ca_ch_ent1, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(x4& (
super(labelentry(
.{

```



```

app_date_ent1}::
pack(app_date_ent1, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg6_frm&(
widget(app_date_ent1, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right]&([
default_var(x5&(
super(labelentry(
.{

app_mth_ent3}::
pack(app_mth_ent3, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg6_frm&(
widget(app_mth_ent3, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right]&([
default_var(x11&(
super(labelentry(
.{

ad1_ent}::

pack(ad1_ent, ['-side',bottom,'-expand',true,'-fill',both,'-anchor',s
&([
belong_to( bot_dlg6_frm&(
widget(ad1_ent, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right]&([
default_var(x7&(
super(labelentry(
.{

upa_dlg6_frm}::
pack(upa_dlg6_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([

belong_to(up_dlg6_frm&(
widget(upa_dlg6_frm, ['-labelside',none&([ [
super(labelframe(
.{

```

```

mg_su_ent1}::
pack(mg_su_ent1, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(upa_dlg6_frm& (
widget(mg_su_ent, ['-label-' : 'labelside',right],
['label.width',25,'entry.width',47,'entry.justify',right& ([
default_var(x1& (
super(labelentry(
.{

```

```

mg_ad_l_ent1}::
pack(mg_ad_l_ent1, ['-side',bottom,'-expand',true,'-fill',both,'-
anchor',s& ([
belong_to(upa_dlg6_frm& (
widget(mg_ad_l_ent1, ['-label-' 'labelside',right ([ [
&
super(labelframe(
.{

```

```

mg_su_ad_ent1}::
pack(mg_su_ad_ent1, ['-side',top,'-expand',true,'-fill',both,'-
anchor',w& ([
belong_to(mg_ad_l_ent1& (
widget(mg_su_ad_ent1, ['-height', 60, '-width',300],
['entry.justify',left& ([
super(textwindow(
.{

```

```

app_mth_ent2}::
pack(app_mth_ent2, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(upa_dlg6_frm& (
widget(app_mth_ent2, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(x6& (
super(labelentry(
.{

```

File Name	Dlg7
-----------	------

File Size	7 KB
File Date	1/9/2002

```

dlg7}>::
widget(dlg7& ([
components])
all_dlg7_frm
ok_btndlg7
up_dlg7_frm
bot_dlg7_frm
upa_dlg7_frm
mg_su_ent7
mg_ad_l_ent7
mg_su_ad_ent7

up_left_fr7
up_right_dlg7_fr
up_top_fr7
qty_lb7
ir_ch_ent7
zn_ch_ent7
mn_ch_ent7
ca_ch_ent7
app_mth_ent7
app_date_ent7
adl_ent7
app_mth_ent8
    &([

init-:
    display
    micro_element_schedule :: get( iron_chelate_quantity(IrChel ((
    micro_element_schedule :: get( zink_chelate_quantity(ZnChel ((
    micro_element_schedule :: get(
manganese_chelate_quantity(MnChel ((
    clacium_nitrate_schedule :: get( quantity(CaChel ((
    micro_element_schedule :: get(application_date(AppDate ((
    micro_element_schedule :: get(advice(Adv ((

```

```

        magnesium_sulphate_schedule :: get( quantity(MgSue1 ((
        magnesium_sulphate_schedule :: get( advice(MgSuAdel ((
        task_user ::
check_micro_elem_val([IrChel,ZnChel,MnChel,MgSue1],Flag (

)Flag = true<-
)
    task_user :: round_t0_ten(IrChel,IrChel3 (
    task_user :: round_t0_ten(ZnChel,ZnChel3 (
    task_user :: round_t0_ten(MnChel,MnChel3 (
    task_user :: round_t0_ten(CaChel,CaChel3 (
    task_user :: round_t0_ten(MgSue1,MgSue13 (
    ir_ch_ent7 :: set_default(IrChel3 (
    zn_ch_ent7 :: set_default(ZnChel3 (
    mn_ch_ent7 :: set_default(MnChel3 (
    ca_ch_ent7 :: set_default(CaChel3 (
    mg_su_ent7:: set_default(MgSue13 (
    mg_su_ad_ent7 :: delete('1.0' , end (
    mg_su_ad_ent7 :: insert('1.0', MgSuAdel (
    app_date_ent7:: set_default(AppDate (
    app_mth_ent7:: set_default('      ')
))MgSue13 = 0.0<- (
        app_mth_ent8:: set_default("")

        app_mth_ent8:: set_default('      ')
    (
    ad1_ent7 :: set_default(Adv (
    tkwait
(

:   true

    &(

super(dialog(
.{

all_dlg7_frm}::
pack(all_dlg7_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(dlg7& (

```

```

widget(all_dlg7_frm, ['-labelside',none& ([] [
super(labelframe(
.{

ok_btndlg7}>::
pack(ok_btndlg7& ([]
belong_to(dlg7& (
widget(ok_btndlg7, ['-orient',horizontal], ['-padx','', '-pady& (['' '
default(ok& (
button(ok, ['-text-' ' 'command','ok_btndlg7 :: action_ok'],
'<Control-o& ('<
action_ok-:
    dlg7 :: destroy&
super(buttonbox(
.{

up_dlg7_frm}>::
pack(up_dlg7_frm, ['-side',bottom,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(all_dlg7_frm& (
widget(up_dlg7_frm, ['-labelside',none& ([] [
super(labelframe(
.{

bot_dlg7_frm}>::
pack(bot_dlg7_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(up_dlg7_frm& (
widget(bot_dlg7_frm, ['-labelside',none& ([] [
super(labelframe(
.{

up_left_fr7}>::
pack(up_left_fr7, ['-side',left,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(bot_dlg7_frm& (
widget(up_left_fr7, ['-labelside',left& ([] [
super(labelframe(
.{

up_right_dlg7_fr}>::

```

```

pack(up_right_dlg7_fr, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(bot_dlg7_frm& (
widget(up_right_dlg7_fr, ['-labelside',right& ([ [
super(labelframe(
.{

up_top_fr7}>::
pack(up_top_fr7, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg7_frm& (
widget(up_top_fr7, ['-labelside',none& ([ [
super(labelframe(
.{

qty_lb7}>::
pack(qty_lb7, ['-side',left,'-expand',true,'-fill',both,'-anchor',e ([
&
belong_to(up_top_fr7& (
widget(qty_lb7, ['-anchor',c,'-text
-' /      padx',5,'-pady',5,'-relief',groove,'-justify',left ([ [
&
super(label(
.{

ir_ch_ent7}>::
pack(ir_ch_ent7, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
& ([
belong_to(bot_dlg7_frm& (
widget(ir_ch_ent7, ['-label-' :      'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([
default_var(x2& (
super(labelentry(
.{

zn_ch_ent7}>::
pack(zn_ch_ent7, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
& ([
belong_to(bot_dlg7_frm& (
widget(zn_ch_ent7, ['-label-' :      'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right& ([

```

```

default_var(x3&(
super(labelentry(
.{

mn_ch_ent7}::
pack(mn_ch_ent7, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
&([
belong_to(bot_dlg7_frm&(
widget(mn_ch_ent7, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right&([
default_var(x8&(
super(labelentry(
.{

ca_ch_ent7}::
pack(ca_ch_ent7, ['-side',top,'-expand',true,'-fill',both,'-anchor',e
&([
belong_to(bot_dlg7_frm&(
widget(ca_ch_ent7, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right&([
default_var(x4&(
super(labelentry(
.{

app_date_ent7}::
pack(app_date_ent7, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg7_frm&(
widget(app_date_ent7, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right&([
default_var(x5&(
super(labelentry(
.{

app_mth_ent7}::
pack(app_mth_ent7, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg7_frm&(

```

```

widget(app_mth_ent7, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right]& ([
default_var(x11& (
super(labelentry(
.{

app_mth_ent8} ::
pack(app_mth_ent8, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(upa_dlg7_frm& (
widget(app_mth_ent8, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right]& ([
default_var(x12& (
super(labelentry(
.{

ad1_ent7} ::

pack(ad1_ent7, ['-side',bottom,'-expand',true,'-fill',both,'-
anchor',s& ([
belong_to( bot_dlg7_frm& (
widget(ad1_ent7, ['-label-' : 'labelside',right],
['label.width',20,'entry.width',47,'entry.justify',right]& ([
default_var(x7& (
super(labelentry(
.{

upa_dlg7_frm} ::
pack(upa_dlg7_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([

belong_to(up_dlg7_frm& (
widget(upa_dlg7_frm, ['-labelside',none& ([ [
super(labelframe(
.{

mg_su_ent7} ::
pack(mg_su_ent7, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(upa_dlg7_frm& (

```



```

widget(mg_su_ent7, ['-label-' : ''
labelside',right],
['label.width',25,'entry.width',47,'entry.justify',right]&([
default_var(x1&(
super(labelentry(
.{

mg_ad_1_ent7}::
pack(mg_ad_1_ent7, ['-side',bottom,'-expand',true,'-fill',both,'-
anchor',s&([
belong_to(upa_dlg7_frm&(
widget(mg_ad_1_ent7, ['-label-' 'labelside',right([ [
&
super(labelframe(
.{

mg_su_ad_ent7}::
pack(mg_su_ad_ent7, ['-side',top,'-expand',true,'-fill',both,'-
anchor',w&([
belong_to(mg_ad_1_ent7&(
widget(mg_su_ad_ent7, ['-height', 60, '-width',300],
['entry.justify',left&([
super(textwindow(
.{

```

File Name	Dlg8
File Size	11 KB
File Date	1/9/2002

```

dlg8}::
widget(dlg8&([
window_title&('
%components(Xs) :- self(D), :findall(X, D :: cs(_, X), Xs&(
components])
all_dlg8_frm
ok_btndlg8
left_dlg8_frm
right_dlg8_frm

```

```

fertdlg8_cmbx
up_dlg8_frm
bot_dlg8_frm
lnddlg8_ent
frstdlg8_ent
snddlg8_ent
thrddlg8_ent
forthdlg8_ent
fifth8_ent
sixth8_ent
sevth8_ent
eghith8_ent
ninth8_ent
tenth8_ent
elevth8_ent
twel8_ent
thirtee8_ent
left_f11_opr_irr_fert8
ad_ent2a8

```

```
&([
```

```
super(dialog(
```

```
.{
```

```
all_dlg8_frm}::
```

```
belong_to(dlg8&(
```

```
pack(['-side',top,'-expand',true,'-fill',both,'-anchor',n&([
```

```
widget(all_dlg8_frm, ['-labelside',none&([ [
```

```
super(labelframe(
```

```
.{
```

```
bot_dlg8_frm}::
```

```
pack(bot_dlg8_frm, ['-side',bottom,'-expand',true,'-fill',both,'-
anchor',s&([
```

```
belong_to(right_dlg8_frm&(
```

```
widget(bot_dlg8_frm, ['-labelside',none&([ [
```

```
super(labelframe(
```

```
.{
```

```

fertdlg8_cmbx}::
pack(fertdlg8_cmbx, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(left_dlg8_frm& (
widget(fertdlg8_cmbx, ['-label-' / ) ) ''
labelside',right,'-editable',false,'-dropdown',true,'-
browsecmd',on_change_fert3_name],
['label.with',28,'entry.width',40,'-anchor',e,'-value',command& ([
content(ME-:(
    task_user :: get(macro_element(ME&((
super(combobox(
.{

forthdlg8_ent}::
pack(forthdlg8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg8_frm & (
widget(forthdlg8_ent, ['-label-' : ''labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right& ([
default_var(x8& (
super(labelentry(
.{

fifth8_ent}::
pack(fifth8_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg8_frm& (
widget(fifth8_ent, ['-label-' : ''labelside',right],
['label.idth',28,'entry.width',80,'entry.justify',right& ([
default_var(x6 & (
super(labelentry(
.{

sixth8_ent}::
pack(sixth8_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg8_frm& (
widget(sixth8_ent, ['-label-' : ''labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right& ([
default_var(x7& (
super(labelentry(

```

```

.{

sevth8_ent}::
pack(sevth8_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg8_frm& (
widget(sevth8_ent, ['-label-' : 'labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right& ([
default_var(x8& (
super(labelentry(
.{

eghith8_ent}::
pack(eghith8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg8_frm& (
widget(eghith8_ent, ['-label-' : 'labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right& ([
default_var(x9& (
super(labelentry(
.{

ninth8_ent}::
pack(ninth8_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg8_frm& (
widget(ninth8_ent, ['-label-' : 'labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right& ([
default_var(x10& (
super(labelentry(
.{

/*****/

tenth8_ent}::
pack(tenth8_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
& ([
belong_to(bot_dlg8_frm& (
widget(tenth8_ent, ['-label-' : 'labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right& ([

```

```

default_var(x12&(
super(labelentry(
.{

elevth8_ent}::
pack(elevth8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg8_frm&(
widget(elevth8_ent, ['-label-'          : 'labelside',right],
['label.width',28,'entry.width',80,'entry.justify',right&([
default_var(x13&(
super(labelentry(
.{

twel8_ent}::
pack(twel8_ent, ['-side',top,'-expand',true,'-fill',both,'-anchor',n
&([
belong_to(bot_dlg8_frm&(
widget(twel8_ent, ['-label-'          : 'labelside',right],
['label.width',28,'entry.width',80,'entry.justify',right&([
default_var(x14&(
super(labelentry(
.{

thirtee8_ent}::
pack(thirtee8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg8_frm&(
widget(thirtee8_ent, ['-label-'          : 'labelside',right],
['label.width',28,'entry.width',80,'entry.justify',right&([
default_var(x18&(
super(labelentry(
.{

/*****/

frstdlg8_ent}::
pack(frstdlg8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg8_frm&(

```

```

widget(frstdlg8_ent, ['-label-' : 'labelside',right],
['label.idth',28,'entry.width',80,'entry.justify',right]& ([
default_var(x11& (
super(labelentry(
.{

left_dlg8_frm} ::
pack(left_dlg8_frm, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(all_dlg8_frm& (
widget(left_dlg8_frm, ['-labelside',none& ([ [
super(labelframe(
.{

lnddlg8_ent} ::
pack(lnddlg8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n& ([
belong_to(bot_dlg8_frm& (
widget(lnddlg8_ent, ['-label-' : 'labelside',right],
['label.wdth',28,'entry.width',80,'entry.justify',right]& ([
default_var(x2& (
super(labelentry(
.{

ok_btndlg8} ::
pack(['-side bottom -fill both& ([
belong_to(dlg8& (
widget(ok_btndlg8, ['-orient',horizontal], ['-padx','','-pady& ([''
default(ok& (
button(ok, ['-text-' 'command','ok_btndlg8 ::
ok_action'], '<Control-o& ('<
ok_action-:

    dlg8 :: destroy&
super(buttonbox(
.{

perdlg8_lb} ::
pack(perdlg8_lb, ['-side',left,'-expand',true,'-fill',both,'-
anchor',w& ([

```

```

belong_to(lft_dlg8_frm& (
%belong_to(right_dlg8_frm& (
widget(perdlg8_lb, ['-anchor',c,'-text-' / ) )'padx',0,'-
pady',0,'-relief',solid,'-justify',center& ([] [
super(label(
.{

qtydlg8_lb)::
pack(qtydlg8_lb, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
%belong_to(right_dlg8_frm& (
belong_to(rgh_dlg8_frm& (
widget(qtydlg8_lb, ['-anchor',c,'-text-' 'padx',0,'-pady',0,'-
relief',solid,'-justify',center& ([] [
super(label(
.{

rgh_dlg8_frm)::
pack(rgh_dlg8_frm, ['-side',right,'-expand',true,'-fill',both,'-
anchor',w& ([
%belong_to(up_dlg8_frm& (
belong_to(right_dlg8_frm& (
widget(rgh_dlg8_frm, ['-labelside',none& ([] [
super(labelframe(
.{

lft_dlg8_frm)::
pack(lft_dlg8_frm, ['-side',left,'-expand',true,'-fill',both,'-
anchor',e& ([
%belong_to(up_dlg8_frm& (
belong_to(right_dlg8_frm& (
widget(lft_dlg8_frm, ['-labelside',none& ([] [
super(labelframe(
.{

right_dlg8_frm)::
pack(right_dlg8_frm, ['-side',right,'-expand',true,'-fill',both,'-
anchor',e& ([
belong_to(all_dlg8_frm& (
widget(right_dlg8_frm, ['-labelside',none& ([] [

```

```

super(labelframe(
.{

snddl8_ent}::
pack(snddl8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg8_frm&(
widget(snddl8_ent, ['-label-' : 'labelside',right],
['label.width',28,'entry.width',80,'entry.justify',right]&([
default_var(x3&(
super(labelentry(
.{

thrddl8_ent}::
pack(thrddl8_ent, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(bot_dlg8_frm&(
widget(thrddl8_ent, ['-label-' : 'labelside',right],
['label.width',28,'entry.width',80,'entry.justify',right]&([
default_var(x4&(
super(labelentry(
.{

up_dlg8_frm}::
pack(up_dlg8_frm, ['-side',top,'-expand',true,'-fill',both,'-
anchor',n&([
belong_to(right_dlg8_frm&(
widget(up_dlg8_frm, ['-labelside',none&([ [
super(labelframe(
.{

ad_ent2a8}::
pack(ad_ent2a8, ['-side',top,'-expand',true,'-fill',both,'-anchor',w
&([
belong_to(left_f11_opr_irr_fert8&(
widget(ad_ent2a8, ['-height', 60, '-width',300],
['entry.justify',left]&([
super(textwindow(
.{

```



```

left_f11_opr_irr_fert8)::
pack(left_f11_opr_irr_fert8, ['-side',bottom,'-expand',true,'-
fill',both,'-anchor',s& ([
belong_to(bot_dlg8_frm& (
widget(left_f11_opr_irr_fert8, ['-label-' ' ' '
labelside',right& ([ [
super(labelframe(
.{

```

```

on_change_fert3_name-:

```

```

    fertdlg8_cmbx :: fetch(CN (
    task_user ::trans(CN1,CN (
    CN1 :: get(quantity_during_land_preparation(V1 ((
    CN1 :: get(quantity_during_first_week(V2 ((
    CN1 :: get(quantity_during_secon_week(V3 ((
    CN1 :: get(quantity_during_third_week(V4 ((
    CN1 :: get(quantity_during_forth_week(V8 ((
    CN1 :: get(quantity_during_fifth_week(V6 ((
    CN1 :: get(quantity_during_sixth_week(V7 ((
    CN1 :: get(quantity_during_seventh_week(V8 ((
    CN1 :: get(quantity_during_eighth_week(V9 ((
    CN1 :: get(quantity_during_ninth_week(V10 ((
*****/begin/****

```

```

    CN1 :: get(quantity_during_tenth_week(V11 ((
    CN1 :: get(quantity_during_eleventh_week(V12 ((
    CN1 :: get(quantity_during_twelfth_week(V13 ((
    CN1 :: get(quantity_during_thirteen_week(V14 ((
    CN1 :: get(advice(Vad ((
    task_user :: round_t0_ten(V1,V1n (
    task_user :: round_t0_ten(V2,V2n (
    task_user :: round_t0_ten(V3,V3n (
    task_user :: round_t0_ten(V4,V4n (
    task_user :: round_t0_ten(V8,V8n (
    task_user :: round_t0_ten(V6,V6n (

```

```

task_user :: round_t0_ten(v7,v7n (
task_user :: round_t0_ten(v8,v8n (
task_user :: round_t0_ten(v9,v9n (
task_user :: round_t0_ten(v10,v10n (
task_user :: round_t0_ten(v11,v11n (
task_user :: round_t0_ten(v12,v12n (
task_user :: round_t0_ten(v13,v13n (
task_user :: round_t0_ten(v14,v14n (
lnddlg8_ent:: set_default(v1n (
frstdlg8_ent:: set_default(v2n (
  snddlg8_ent:: set_default(v3n (
  thrddlg8_ent:: set_default(v4n (
  forthdlg8_ent:: set_default(v8n (
  fifth8_ent:: set_default(v6n (
  sixth8_ent:: set_default(v7n (
  sevth8_ent :: set_default(v8n (
  eghith8_ent:: set_default(v9n (
  ninth8_ent:: set_default(v10n (
  tenth8_ent:: set_default(v11n (
  elevth8_ent:: set_default(v12n (
  twel8_ent:: set_default(v13n (
  thirtee8_ent:: set_default(v14n (
ad_ent2a8 :: delete('1.0' , end (
ad_ent2a8 :: insert('1.0', Vad.(

```

## 6. Test Cases

### Case1

### Output

اسم السماد	الكمية (كجم/ فدان)
حديد مخليبي	3.8
زنك مخليبي	2.9
منجنيز مخليبي	5.1
نترات كالمسيوم	0.0
تاريخ الرش	1 10 2002
النصيحة	كرر هذه العملية عند بداية العقد
طريقة التسميد	رش ورقي
سلفات الماغنسيوم	0.0
النصيحة	
طريقة التسميد	

اسم السماد: سموبر خضففات

إفترات التسميد:

اعداد الأرض للزراعة:	185.1
الشهر الاول:	61.7
الشهر الثاني:	0.0

النصيحة: التسميد خلال الشهر الأول يتم قبل رية المحيابة

اسم السماد: نترات الامونيوم

إفترات التسميد:

اعداد الأرض للزراعة:	235.6
الشهر الاول:	471.1
الشهر الثاني:	235.6

النصيحة: التسميد خلال الشهر الأول يتم قبل رية المحيابة و خلال الشهر الثاني يتم عند بداية التزهير

اسم السماد: سلفات البوتاسيوم

إفترات التسميد:

اعداد الأرض للزراعة:	0.0
الشهر الاول:	218.0
الشهر الثاني:	218.0

النصيحة: التسميد خلال الشهر الأول يتم قبل رية المحيابة و خلال الشهر الثاني يتم عند بداية التزهير

## Case 2

بيانات المزرعة

اسم القطاع:  اسم المحافظة:  اسم المركز:  اسم المزرعة:

تاريخ الزراعة:  نوع المزرعة:  مساحة المزرعة (م<sup>2</sup>):

البيانات:  البعدان بين الصفوف:  البعدان بين النباتات:  تنقيط:  معدل التنقيط:  السيطرة على الحشرات:

عمر البلاستيك:  نظام الري:  عدد التناقلات:  محل التنقيط:  السيطرة على المياه:  حيد:

نظام الصرف:  ميوحة الري بالفضل:  طريقة الزراعة:  الصلابة الفوسفورية:  الصلابة البوتاسيوم:  الصلابة الفوسفورية:

بيانات التربة و المياه لزراعة 1

نوع التربة:  حموضة التربة:  ملوحة التربة:  مستوى المياه الارضي:  ملوحة مياه الري:

درجة الصلابة الحقلية:  نقطة الذبول:  درجة تشبع التربة:  الكثافة الظاهرية للتربة:

حفظ تعديل الغاء خروج

## Output

KROL

اسم السماد (كجم/صورة):

1.0	حديد مخلي:
0.7	زنك مخلي:
1.3	منجنيز مخلي:
0.0	نترات كالسيوم:
0.0	ورق وركبي:
1 10 2002	تاريخ الري:
كرر هذه العملية عند بداية العقد	التوصية:

0.0 : صلغات البوتاسيوم :  
التوصية :  
طريقة التوصية :

خروج

الري بالتنقيط

اسم السماد (كجم/صورة):

0.0	اعداد الأرض للزراعة:
0.0	الأسبوع الأول:
0.0	الأسبوع الثاني:
11.1	الأسبوع الثالث:
11.1	الأسبوع الرابع:
7.8	الأسبوع الخامس:
7.8	الأسبوع السادس:
7.8	الأسبوع السابع:
6.7	الأسبوع الثامن:
6.7	الأسبوع التاسع:
6.7	الأسبوع العاشر:
6.7	الأسبوع الحادي عشر:
6.7	الأسبوع الثاني عشر:
3.9	الأسبوع الثالث عشر:

كرر للأسبوع الثالث عشر حتى قبل نهاية الاسبوع بأسبوع

التوصية :  
خروج

الري بالتنقيط

اسم السماد (كجم/صورة):

0.0	اعداد الأرض للزراعة:
0.0	الأسبوع الأول:
0.0	الأسبوع الثاني:
1.3	الأسبوع الثالث:
1.3	الأسبوع الرابع:
0.9	الأسبوع الخامس:
0.9	الأسبوع السادس:
0.9	الأسبوع السابع:
0.7	الأسبوع الثامن:
0.7	الأسبوع التاسع:
0.7	الأسبوع العاشر:
0.7	الأسبوع الحادي عشر:
0.7	الأسبوع الثاني عشر:
0.3	الأسبوع الثالث عشر:

كرر للأسبوع الثالث عشر حتى قبل نهاية الاسبوع بأسبوع

التوصية :  
خروج

الري بالتنقيط

اسم السماد (كجم/صورة):

30.0	اعداد الأرض للزراعة:
0.0	الأسبوع الأول:
36.1	الأسبوع الثاني:
21.6	الأسبوع الثالث:
21.6	الأسبوع الرابع:
14.4	الأسبوع الخامس:
14.4	الأسبوع السادس:
14.4	الأسبوع السابع:
10.6	الأسبوع الثامن:
10.6	الأسبوع التاسع:
10.6	الأسبوع العاشر:
10.6	الأسبوع الحادي عشر:
10.6	الأسبوع الثاني عشر:
4.1	الأسبوع الثالث عشر:

كرر للأسبوع الثالث عشر حتى قبل نهاية الاسبوع بأسبوع

التوصية :  
خروج



## 7. Comments:

a) rule1 in page3 (Prediction Model) in the design is updated to the following:

```
(plant: name = bean &
(plantation: type = open field OR
plantation: type = low tunnel))
CONCLUDE
(plantation: optimum yield = 7)
```

b) rules in pages 7,8,9,10 (schedule model) in the design are updated to the following:

```
(plant: name = bean &
plantation: type = low tunnels &
macro element: nitrogen fertilizer name: = urea)
TABULATE
```

```
( urea schedule: quantity during land preparation = (urea: quantity) * 0.25 &
urea schedule: quantity during first week = 0 &
urea schedule: quantity during third week = (urea: quantity) * 0.07 &
urea schedule: quantity during fourth week = (urea: quantity) * 0.07 &
urea schedule: quantity during fifth week = (urea: quantity) * 0.07 &
urea schedule: quantity during sixth week = (urea: quantity) * 0.07 &
urea schedule: quantity during seventh week = (urea: quantity) * 0.07 &
urea schedule: quantity during eighth week = (urea: quantity) * 0.07 &
urea schedule: quantity during ninth week = (urea: quantity) * 0.07 &
urea schedule: quantity during tenth week = (urea: quantity) * 0.07 &
urea schedule: quantity during eleventh week = (urea: quantity) * 0.04 &
urea schedule: quantity during twelve week = (urea: quantity) * 0.04 &
urea schedule: quantity during thirteen week = (urea: quantity) * 0.04 &
```

```
urea schedule: advice =')
```

(plant: name = bean &  
plantation: type = low tunnels &  
macro element: nitrogen fertilizer name = ammonium nitrate )

TABULATE

(ammonium nitrate schedule: quantity during land preparation = (ammonium nitrate: quantity) \* 0.25 &

ammonium nitrate schedule: quantity during first week = 0 &  
ammonium nitrate schedule: quantity during third week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during fourth week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during fifth week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during sixth week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during seventh week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during eighth week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during ninth week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during tenth week = (ammonium nitrate: quantity) \* 0.07 &  
ammonium nitrate schedule: quantity during eleventh week = (ammonium nitrate: quantity) \* 0.04 &  
ammonium nitrate schedule: quantity during twelve week = (ammonium nitrate: quantity) \* 0.04 &  
ammonium nitrate schedule: quantity during thirteenth week = (ammonium nitrate: quantity) \* 0.04 &

ammonium nitrate schedule: advice ='

')

(plant: name = bean &  
plantation: type = low tunnels &  
macro element: nitrogen fertilizer name = ammonium sulphate )

TABULATE

(ammonium sulphate schedule: quantity during land preparation = (ammonium sulphate: quantity) \* 0.25 &

ammonium sulphate schedule: quantity during first week = 0 &  
ammonium sulphate schedule: quantity during third week = (ammonium sulphate: quantity) \* 0.07 &  
ammonium sulphate schedule: quantity during fourth week = (ammonium sulphate: quantity) \* 0.07 &  
ammonium sulphate schedule: quantity during fifth week = (ammonium sulphate: quantity) \* 0.07 &  
ammonium sulphate schedule: quantity during sixth week = (ammonium sulphate: quantity) \* 0.07 &

ammonium sulphate schedule: quantity during seventh week = (ammonium sulphate: quantity) \* 0.07 &  
 ammonium sulphate schedule: quantity during eighth week = (ammonium sulphate: quantity) \* 0.07 &  
 ammonium sulphate schedule: quantity during ninth week = (ammonium sulphate: quantity) \* 0.07 &  
 ammonium sulphate schedule: quantity during tenth week = (ammonium sulphate: quantity) \* 0.07 &  
 ammonium sulphate schedule: quantity during eleventh week = (ammonium sulphate: quantity) \* 0.04 &  
 ammonium sulphate schedule: quantity during twelve week = (ammonium sulphate: quantity) \* 0.04 &  
 ammonium sulphate schedule: quantity during thirteen week = (ammonium sulphate: quantity) \* 0.04 &

ammonium sulphate schedule: advice ='

')

(plant: name = bean &  
 plantation: type = low tunnel )

TABULATE

(super phosphate schedule: quantity during land preparation = (super phosphate: quantity)\*0.75 &  
 phosphoric acid schedule: quantity during third week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during fourth week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during fifth week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during sixth week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during seventh week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during eighth week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during ninth week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during tenth week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during eleventh week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during twelve week = (phosphoric acid: quantity) \* 0.02 &  
 phosphoric acid schedule: quantity during thirteen week = (phosphoric acid: quantity) \* 0.02 &

phosphoric acid schedule: advice =

')

